



Office of General Services

DESIGN & CONSTRUCTION GROUP
THE GOVERNOR NELSON A. ROCKEFELLER
EMPIRE STATE PLAZA
ALBANY, NY 12242

ADDENDUM NO. 1 TO PROJECT NO. 47352

CONSTRUCTION, HVAC, PLUMBING AND ELECTRICAL WORK REHABILITATE LOCKER ROOMS & LATRINES STATE ARMORY 150-74 6TH AVENUE WHITESTONE, NY

June 23, 2023

<p>NOTE: This Addendum forms a part of the Contract Documents. Insert it in the Project Manual. Acknowledge receipt of this Addendum in the space provided on the Bid Form.</p>
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GENERAL REQUIREMENTS – COMMON DOCUMENT

1. Page 011000 – 4, Article 1.11: CHANGE Article to Read:

“1.11 OPENINGS AND CHASES

- A. Construction Work Contract:
 1. Unless specifically indicated otherwise, provide openings, chases, and similar items provided under this Contract, as required for items to be provided under related contracts.
 2. After the installation and completion of the items for which openings and chases have been provided, build in, over, around and finish the openings and chases to complete the Work.
 3. Provide all cutting, patching, and refinishing resulting from failure to provide the required openings and chases, if the necessary information was furnished by the related contractor before 24 hours of start of the applicable part of the Work.
 4. If related contractors fail to furnish drawings or written information covering the openings and chases they require at least 24 hours before installation of the Work affected by those items, the related contractors will be required to do all cutting, patching, and refinishing of the construction so affected, at their own expense.
- B. HVAC Work, Plumbing Work, and Electrical Work Contracts:
 1. Unless specifically indicated otherwise, furnish drawings or written information to the Construction Work Contractor covering the openings and chases required for the Work. If such information is not furnished at least 24 hours before start of the applicable part of the Construction

Work Contractor's work, all necessary cutting, patching, and refinishing will be included in the Contract at no additional cost to the State."

CONSTRUCTION WORK

2. Page 014339 – 1, Article 1.01: CHANGE Article to Read:

"1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Concrete Unit Masonry: Section 042200
- B. Firestopping: Section 078400
- C. Finish Hardware: Section 087100
- D. Glass and Glazing: Section 088101"

ELECTRICAL WORK

- 3. SECTION 033001 CAST-IN-PLACE CONCRETE: Add the accompanying Section (pages 033001 – 1 thru 033001 – 4) to the Project Manual.
- 4. SECTION 260543 UNDERGROUND CONDUIT SYSTEM: Add the accompanying Section (pages 260543 – 1 thru 260543 – 3) to the Project Manual.
- 5. SECTION 283105 MODIFICATIONS TO EXISTING FIRE ALARM SYSTEM: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 283105 – 1 thru 283105 – 7) noted "Revised 6/21/23".
- 6. SECTION 283106 NEW FIRE ALARM SYSTEM: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 283106 – 1 thru 283106 – 19) noted "Revised 6/21/23".
- 7. SECTION 310000 EARTHWORK: Add the accompanying Section (pages 310000 – 1 thru 310000 – 7) to the Project Manual.
- 8. SECTION 310101 SITE RESTORATION: Add the accompanying Section (pages 310101 – 1 thru 310101 – 4) to the Project Manual.
- 9. SECTION 321216 ASPHALT PAVING: Add the accompanying Section (pages 3212163 – 1 thru 3212163 – 4) to the Project Manual.

CONSTRUCTION DRAWINGS

- 10. Revised Drawings:
 - a. Drawing Nos. H-100, A-001, A-002, AD-101, A-111, and A-502, noted "REVISED DRAWING 6/21/23" accompany this Addendum and supersede the same numbered originally issued drawings.

HVAC DRAWINGS

11. Revised Drawings:
 - a. Drawing Nos. MD-101, M-101, M-102, and M-401, noted “REVISED DRAWING 6/21/23” accompany this Addendum and supersedes the same numbered originally issued drawings.

ELECTRICAL DRAWINGS

12. Revised Drawings:
 - a. Drawing Nos. ED-101, E-101, E-102, E-103, E-501, E-601, E-702, FA-001, FAD-101, and FA-101, noted “REVISED DRAWING 6/21/23” accompany this Addendum and supersedes the same numbered originally issued drawings.

END OF ADDENDUM

Brady M. Sherlock, P.E.
Director, Division of Design
Design and Construction

SECTION 033001

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 REFERENCES

- A. Except as shown or specified otherwise, the Work of this Section shall conform to the requirements of Specifications for Structural Concrete for Buildings ACI 301-16 of the American Concrete Institute.

1.02 DEFINITIONS (Amendments to ACI 301, Section 1.2):

- A. Exposed Construction: Exposed to view.

1.03 SUBMITTALS

- A. Submittals Package: Submit product data for design mix(es) and materials for concrete specified below at the same time as a package.
- B. Shop Drawings: Placing drawings for bar reinforcement.
- C. Product Data:
 - 1. Concrete design mix(es) with name and location of batching plant.
 - 2. Portland Cement: Brand and manufacturer's name.
 - 3. Air-entraining Admixture: Brand and manufacturer's name.
 - 4. Water-reducing Admixture: Brand and manufacturer's name.
 - 5. Aggregates: Name and location of source, and DOT test numbers.
- D. Samples:
 - 1. Bar Supports: Full size.
- E. Quality Control Submittals:
 - 1. Certificates: Affidavit required under Quality Assurance Article.

1.04 QUALITY ASSURANCE

- A. Concrete batching plant shall be currently approved as a concrete supplier by the New York State Department of Transportation.
- B. Certifications: Affidavit by the bar reinforcement manufacturer certifying that bar material meets the contract requirements.
 - 1. Submit evidence consisting of certification of source of material, copies of purchase orders and manufacturer's certifications. For stock material, submit copies of latest mill or purchase orders for material replacement.
 - 2. Fabricator's and Erector's Qualifications Data: Name and experience of fabricator and erector.

- C. Source Quality Control: The Director reserves the right to inspect and approve the following items, at his own discretion, either with his own forces or with a designated inspection agency:
 - 1. Batching and mixing facilities and equipment.
 - 2. Sources of materials.

1.05 STORAGE

- A. Store materials so as to insure the preservation of their quality and fitness for the Work. Materials, even though accepted prior to storage, are subject to inspection and shall meet the requirements of the Contract before their use in the Work.

PART 2 PRODUCTS

2.01 MATERIALS (Amendments to ACI 301, Section 4, for Normal Weight Concrete and Section 7, for Lightweight Concrete):

- A. Water-reducing Admixture: ASTM C 494, Type A, and on the New York State Department of Transportation's current "Approved List".

2.02 PROPORTIONING (Amendments to ACI 301, Sections 4 & 7):

- A. Compressive Strength: 4,000 PSI
- B. Weight: Normal
- C. Durability: Concrete shall be air-entrained. Design air content shall be according to ACI 318-14 Table 19.3.2.1 "Requirements for concrete by exposure class", and ACI 318-14 Table 19.3.3.1 "Total air content for concrete exposed to cycles of freezing and thawing", with an allowable tolerance of plus or minus 1.5 percent for total air content. Entrained air shall be provided by use of an approved air-entraining admixture. Air-entrained cement shall not be used.
- D. Slump: Maximum 4 inches; minimum 1 inch before the addition of any water-reducing admixtures or high-range water-reducing admixtures (superplasticizers) at the Site.
- E. Admixtures: Do not use admixtures in concrete unless specified or approved in writing by the Director.
- F. Selection of Proportions: Concrete proportions shall be established on the basis of previous field experience or laboratory trial batches, unless otherwise approved in writing by the Director.

2.03 REINFORCEMENT (Amendments to ACI 301, Section 3):

- A. Bar Reinforcement: ASTM A 615, Grade 60, deformed steel bars.
- B. Bar Supports: Galvanized steel or AISI Type 430 stainless steel, and without plastic tips.

- C. Tie Wire: Black annealed wire, 16-1/2 gage or heavier.

2.04 PRODUCTION (Amendments to ACI 301, Section 5):

- A. Provide ready-mixed concrete, either central-mixed or truck-mixed.

PART 3 EXECUTION

3.01 EXAMINATION AND PREPARATION

- A. Do not use items of aluminum for mixing, chuting, conveying, forming or finishing concrete, except magnesium alloy tools may be used for finishing.
- B. Keep excavations free of water. Do not deposit concrete in water.
- C. Hardened concrete, reinforcement, forms, and earth which will be in contact with fresh concrete shall be free from frost at the time of concrete placement.
- D. Prior to placement of concrete, remove all hardened concrete spillage and foreign materials from the space to be occupied by the concrete.

3.02 FORMWORK (Amendments to ACI 301, Section 2):

- A. The formwork shall be designed for loads, lateral pressure, and allowable stresses outlined in Chapter 4 - Design of "Guide to Formwork for Concrete" (ACI 347-14).
- B. All formwork shall be removed after the concrete has sufficiently hardened, except in inaccessible spaces where approved.
- C. After the ends or end fasteners of form ties have been removed, the embedded portion of the ties shall terminate not less than 3/4 inch from the formed surfaces of concrete.

3.03 PLACING REINFORCEMENT (Amendments to ACI 301, Section 3):

- A. At the time concrete is placed, reinforcement shall be free of mud, oil, loose rust, loose mill scale, and other materials or coatings that may adversely affect or reduce the bond.

3.04 PLACING CONCRETE (Amendments to ACI 301, Section 5):

- A. Operation of truck mixers and agitators and discharge limitations shall conform to the requirements of ASTM C 94.
- B. Do not allow concrete to free fall more than 4 feet.

3.05 FINISHING FORMED SURFACES (Amendments to ACI 301, Section 5.3.3):

- A. Finish Schedule: Except where indicated otherwise on the Drawings, provide the finishes below:
 - 1. Rough Form Finish for concrete surfaces not exposed to view.

3.06 CURING AND PROTECTION (Amendments to ACI 301, Section 5.3.6):

- A. Maintain concrete surfaces in a moist condition for at least 7 days after placing, except where otherwise indicated. Do not use curing compound.

3.07 FIELD QUALITY CONTROL (Amendments to ACI 301, Section 1):

- A. Make available to the Director's Representatives whatever test samples are required to make tests. Furnish shipping boxes for compression test cylinders.

END OF SECTION

SECTION 260543

UNDERGROUND CONDUIT SYSTEM

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Earthwork: Section 310000.
- B. Cast-In-Place Concrete: Section 033001.

1.02 SUBMITTALS

- A. Product Data: Catalog sheets, specifications, and installation instructions.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Rigid Ferrous Metal Conduit: Steel, galvanized on the outside and inside (conduit enameled on the inside will not be accepted), UL categorized as Rigid Ferrous Metal Conduit (identified on UL Listing Mark as Rigid Metal Conduit-Steel or Rigid Steel Conduit), as manufactured by Allied Tube & Conduit Corp., LTV Steel Tubular Products Co., Triangle Wire & Cable Inc., or Wheatland Tube Co.
- B. Rigid Nonmetallic Conduit And Fittings (Concrete Encased): Cantex, Inc.'s Schedule 40, Carlon Electrical Products Inc.'s Plus 40, CertainTeed Corp.'s Schedule 40, Omni/Opti-Com Manufacturing Network, Inc.'s Schedule 40 or Queen City Plastic Inc.'s Schedule 40.
- C. Duct Seal: Appleton Electric Co.'s DUC Weatherproof Compound, Manville Corp.'s Duxseal, OZ/Gedney Co.'s DUX, or Thomas & Betts Corp.'s DX.
- D. Drag Line: Minimum 1/8 inch polypropylene monofilament utility rope; American Synthetic Ropes' Flotorope, Greenlee Tool Co.'s 2 ply Rope 431, or Thomas Industries/Jet Line Products' Rope 232.
- E. Thru Wall Sealing Bushings:
 - 1. For Walls Which Have or Will Have Membrane Waterproofing:
 - a. Cast-In-Place Installations: OZ/Gedney Co.'s Type FSK thruwall seal and Type FSKA membrane clamp adapter.
 - b. Core Drilled or Sleeved Installations: OZ/Gedney Co.'s Type CSM and Type CSMC with membrane clamp adapter.
 - 2. For Walls Which Will Not Have Membrane Waterproofing:
 - a. Cast-In-Place Installations: OZ/Gedney Co.'s Type FSK.
 - b. Core Drilled or Sleeved Installations: OZ/Gedney Co.'s Type CSM, or Thunderline Corp.'s Link-Seal.

- F. End Bells:
 - 1. For Rigid Ferrous Metal Conduit: OZ/Gedney Co.'s Type TNS.
- G. Insulated Grounding Bushings: Appleton Electric Co.'s GIB-50 Series, Crouse Hinds GLL Series, OZ/Gedney Co.'s IBC-50L Series, Raco Inc.'s 1212 Series, or Thomas & Betts Corp.'s 3870 or BG Series.

PART 3 EXECUTION

3.01 PREPARATION

- A. Before installing any Work, lay out the proposed course for the conduits, location of manholes, etc. and have same approved by the Director's Representative.

3.02 INSTALLATION

- A. Spacing:
 - 1. Arrangement for Power and Signal Service: Separate power system conduits from signal system conduits with minimum 6 inches thick concrete wall or 12 inches of earth.
 - 2. Conduit Bank: Separate individual conduits a minimum of 6 inches. Use spacers and levelers located no more than 8 feet apart.
- B. Depth:
 - 1. Existing Grade To Remain: Unless otherwise indicated or directed, install conduit more than 18 inches below existing finished grade.
 - 2. Existing Grade To Be Altered: Unless otherwise indicated or directed, install conduit more than 18 inches below the existing grade where the finished grade is to be higher than the existing grade. Where the finished grade is to be lower than the existing grade, install conduit more than 18 inches below finished grade.
 - 3. Under Roads and Parking Lots:
 - a. Rigid Ferrous Metal Conduit: Unless otherwise indicated or directed, install rigid ferrous metal conduit more than 24 inches below top surface of roads and parking lots.
 - b. Rigid Nonmetallic Conduit (Concrete Encased): Unless otherwise indicated or directed, install concrete encased rigid nonmetallic conduit more than 30 inches below top surface of roads and parking lots.
 - 4. Crossing Obstructions: Use rigid ferrous metal conduit where top of conduit system is less than 18 inches below finished grade when crossing obstructions (heating tunnels, etc.).
 - 5. In Rock:
 - a. Unless otherwise indicated on the drawings install rigid ferrous metal conduit or concrete encased rigid nonmetallic conduit at depths previously specified. Backfill with suitable material in accordance with SECTION 310000 - EARTHWORK.
 - b. Where conduit is indicated to be installed at lesser depths, use rigid ferrous metal conduit. Cover conduit with minimum 2 inches of concrete. In exposed rock area fill trench with concrete

to surface level of rock. Where rock is not exposed, complete backfill in accordance with SECTION 310000 - EARTHWORK.

- C. Pitch:
 - 1. Pitch conduit away from buildings.
 - 2. Pitch conduit toward manhole a minimum of 12 inches per 100 feet. On runs where it is impossible to maintain the grade all one way, grade from center so that conduits pitch both directions down toward manholes.
- D. Jacking Conduits: Rigid ferrous metal conduit may be jacked under roads, parking lots, etc. Submit jacking details for approval.
- E. Conduits Entering Buildings and Manholes:
 - 1. Seal conduit entrances into manholes watertight.
 - 2. Seal conduit entrances into building walls watertight. Exception: Seal is not required in below grade foundation walls associated with slab on grade construction.
 - 3. Install end bells at conduit entrances into manholes.
 - 4. Install end bells at conduit entrances into buildings. Exceptions:
 - a. Install insulated grounding bushing on conduit entrance stub up associated with slab on grade construction.
 - b. Install insulated grounding bushing and 2 locknuts on conduit where conduit is terminated in cabinet, junction or pull box.
- F. Cleaning Conduits: Take precautions to prevent foreign matter from entering conduits during installation. After installation clean conduits with tools designed for the purpose.
- G. Conduit for Future Use (Spare Conduit and Empty Conduit): Demonstrate to the Director's Representative that conduits installed for future use are clear of obstructions (draw mandrel 1/2 inch less in diameter than conduit). Install a drag line in each conduit.
- H. Sealing Ends of Conduits:
 - 1. Occupied Conduits: Seal ends of conduits to be used for Work of this contract until cables are to be installed. After cable installation, seal conduits at building entrances and first manhole outside building. Seal with duct seal.
 - 2. Conduits For Future Use: Seal the ends of spare and empty conduits at building entrances and manholes. Seal with plastic plugs or a contrasting color cement/sand mixture.

3.03 CONDUIT SCHEDULE - TYPES AND USE

- A. Rigid Ferrous Metal Conduit: Install in all locations unless otherwise specified or indicated on the drawings.

END OF SECTION

SECTION 283105**MODIFICATIONS TO EXISTING FIRE ALARM SYSTEM****PART 1 GENERAL****1.01 REFERENCES**

- A. Underwriters Laboratories Inc.
- B. National Fire Protection Association Standard 72.

1.02 DEFINITIONS

- A. Initiating Device Circuit: A circuit to which automatic or manual initiating devices are connected where the signal received does not identify the individual device operated.
Example:
 - 1. Circuits from PPSSs and ICUs to non-addressable signal initiating devices.
- B. Notification Appliance Circuit: A circuit or path directly connected to a notification appliance. Example:
 - 1. Circuits from PPSSs and ICUs to notification appliances.
- C. Signaling Line Circuit: A circuit or path between any combination of circuit interfaces, control units, or transmitters over which multiple system input signals or output signals, or both are carried. Examples:
 - 1. Circuits from PSS to building PPSSs and ICUs.
 - 2. Circuits from PPSSs and ICUs to addressable devices.
- D. Operating Mode:
 - 1. Private Mode:
 - a. Audible and visible signaling only to those persons directly concerned with the implementation and direction of emergency action initiation and procedure in the area protected by the fire alarm system, and:
 - b. Audible and visible signaling only to those persons within special designated areas where private mode operation is specified to be applicable.
 - 2. Public Mode: Audible and visible signaling to occupants or inhabitants of the area protected by the fire alarm system.

1.03 DESCRIPTION OF EXISTING SYSTEM

- A. The existing Edwards EST-2 FACP operates as a proprietary fire alarm, monitoring and control system for the entire building, serving Lower Level, First Level, Second Level and the Roof.
 - 1. Smoke detectors and smoke sensors operate in conjunction with the systems' alarm verification program.
 - a. The alarm verification operation is selectable by zone for smoke detectors and by individual devices for smoke sensors.

- b. The activation of any smoke detector within its zone initiates the alarm verification program.
2. Smoke sensors act as intelligent and addressable devices. The smoke sensor converts the condition of its smoke sensing chamber to an analog value. This analog value is digitized and transmitted to the FACP.
 - a. Actual smoke density and temperature measurements are referenced from average sample measurements and are compared to programmable values of threshold sensitivity.
 - b. Sensor “dirty” and “excessively dirty” trouble conditions are reported automatically through a maintenance advisory and alert program procedure.
3. System individually identifies each addressable initiating device and other addressable monitor functions using multiplexing techniques.
4. System is capable of individually operating each alarm notification appliance, and other control functions, using multiplexing techniques.
5. Alarms are processed by the system at 3 levels of priority:
 - a. Fire alarms have the highest priority.
 - b. Other alarms that require interaction by the attendant have the second level of priority.
 - c. Monitored points which do not require interaction by the attendant are the third level of priority.
6. Access to the system functions are controlled thru at least 3 levels of access security to prevent program modifications or use by unauthorized personnel.
7. Alarms, supervisory signals, and trouble signals are distinctively and descriptively annunciated.
8. Switches for silencing audible trouble and supervisory signals transfers the audible signal to a lamp or other visible indicator adjacent to the switches.
9. All system visual and audible trouble signals and visible indication of their restoration is indicated at the PSS (proprietary supervising station).
 - a. The building’s visual and audible trouble signals and visible indication of their restoration is indicated at its PPSS (protected premises subsidiary station).
10. Monitoring of ground fault conditions indicate a ground fault trouble condition at the PSS.
11. Summary reports are displayed and printed at the PSS upon appropriate keyboard or function command.
12. Life safety control-by-event functions are retained in a non-volatile programmable memory and are not alterable through normal operation of the system.
 - a. The life safety control-by-event control points may be manually operated at any time by authorized personnel thru appropriate system commands.
 - b. Life safety control-by-event functions are printed and displayed at the PSS.
13. User programmable control-by-event functions may be programmed thru appropriate system commands to automatically activate any user programmable control point upon a status change from any programmable monitor point.

- a. The user programmable control-by-event control points may be manually operated at any time by the authorized personnel thru appropriate system commands.
 - b. Dedicated switches in the RA/CCs allows personnel to manually operate each pre-programmed user programmable control-by-event control point.
 - c. Assigned messages, date and time are printed and displayed at the PSS for the control points activated by the user programmable control-by-event function.
- 14. User programmable parameters for automatic time-initiated functions (start/stop, on/off, secure/access, etc.) may be added, omitted and altered thru appropriate system commands.
 - a. The time-initiated user programmable control points may be manually operated at any time by authorized personnel thru appropriate system commands.
 - b. Dedicated switches in the RA/CCs allows personnel to manually operate each pre-programmed user programmable time-initiated control point.
 - c. Assigned messages, date and time are printed and displayed at the PSS for the control points activated by the time-initiated control point.
- B. The PSS activates immediately and performs its alarm functions upon receipt of system alarm condition thru actuation of automatic or manual initiating devices:
 - 1. The PSS sounds its audible alarm and illuminates its system alarm lamp or flashing display.
 - a. The PSS displays the point and type of alarm condition.
 - b. The PSS prints the assigned message with date and time on the printer for the point in alarm.
 - 2. The fire department is automatically called.
 - 3. An authorized person at the PSS presses the acknowledge button which silences its audible alarm and causes a print-out and CRT display of the assigned message for the point in alarm with date, time and an acknowledge prefix.
- C. Life Safety Control-By-Event Functions: The PSS, PPSSs and ICUs immediately perform life safety control-by-event functions upon system alarm condition:
 - 1. Audible alarm signal sounds:
 - a. An authorized person may silence any alarm signal in progress through a silence command, but subsequent actuation of non-addressable initiating devices in other zones cause the system to resound and record the alarm. Subsequent actuation of another addressable initiating device also causes the system to resound and record the alarm.
 - b. An authorized person may activate the alarm notification appliances on all floors of the facility.
 - 1) Visual indicators in the RA/CC at the PSS indicate on/off status of the alarm notification appliances.
 - c. Alarm signal does not sound in stairwells or elevators.

- d. Actuation of smoke detecting devices in stairwells, or elevator shafts do not sound the alarm signal, but activates all other system alarm functions.
 2. Visual alarm notification appliances illuminate and flash a fire warning signal.
 3. Selected HVAC equipment (fans, air handling units) shut down.
 4. Fire dampers and smoke dampers close.
 5. Heat and smoke roof vents open when the associated smoke detecting devices are actuated. Visual indicators in the RA/CCs illuminate, indicating which roof vents are open.
 - D. Primary and Secondary Power Supplies:
 1. Failure of primary power supplies automatically transfers the affected portions of the system to the secondary power supplies.
 2. Utilizing the secondary battery power supplies, the system operates under maximum normal load conditions for 24 hours and then is capable of operating all alarm notification appliances used for evacuation for 5 minutes.
 3. Upon restoration of primary power supply, the system reverts to normal operation without loss, attendant intervention, or manual re-start procedures.
 - E. Monitoring Integrity of Installation Conductors and Other Signaling Channels:
 1. Performance of Signaling Line Circuits:
 - a. Circuits from PSS to PPMCU's: NFPA 72, Class A, Style 7. A print-out and display occurs to identify trouble conditions.
 - b. Circuits from PPMCU's and ICUs to Addressable Devices: NFPA 72, Class B, Style 4. A print-out and display occurs to identify trouble conditions.
 2. Performance of Initiating Device Circuits:
 - a. Circuits from PPMCU's and ICUs to Initiating Devices (Fire Alarm): NFPA 72, Class B, Style C. A print-out and display occurs to identify trouble conditions.
 3. Performance of Notification Appliance Circuits:
 - a. Circuits from PPMCU's and ICUs to Notification Appliances: NFPA 72, Class B, Style Y. A print-out and display occurs to identify trouble conditions.
 4. Monitoring Integrity of Power Supplies:
 - a. An audible and visual alarm, display and print-out indicates failure of the primary (main) power supplies, within the system, at the PSS.
 - b. The system also monitors the secondary (battery) power supplies for battery trouble conditions (low voltage/no batteries, high current and charging current).
 - F. Interconnection of Fire Safety Control Functions:
 1. Monitoring of wiring to the protected premises fire safety function relays and appliances causes a print-out and display to occur at the PSS to identify trouble conditions.

1.04 DESCRIPTION OF COMPLETED SYSTEM

- A. The existing fire alarm system shall continue to operate for the building as outlined in DESCRIPTION OF EXISTING SYSTEM.
- B. The new Fire Alarm Control Panels/Interconnected Control Units shall be the following: Edwards' EST iO64. Refer to Section 283106 for all further required information and accessories required for a full replacement installation.

1.05 SUBMITTALS

- A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.
- B. Refer to Section 283106 for all further required information regarding Submittals.

1.06 QUALITY ASSURANCE

- A. UL Listing: The system products for the modifications shall be listed in the UL Fire Protection Equipment Directory under product category "Control Units System (UOJZ)".
- B. Company Field Advisor: Company Field Advisor shall be National Institute for Certification in Engineering Technologies (NICET) certified as Level III or higher Fire Alarm Protection/Fire Alarm Systems Engineering Technician.
 - 1. Secure the services of a Company Field Advisor from the Company of the existing fire alarm system for a minimum of 24 working hours at the contract site for the following:
 - a. Render advice and witness test of existing fire alarm system.
 - b. Render advice regarding modifications to the fire alarm system.
 - c. Assist in reprogramming the fire alarm system.
 - d. Witness final system test and then certify with an affidavit that the modifications were installed in accordance with the contract documents and are operating properly.

PART 2 PRODUCTS

2.01 NEW FIRE ALARM SYSTEM

- A. Fire Alarm Control Panel: Edwards' EST iO64. Refer to Section 283106 for all further required information and accessories required for a full replacement installation.:

2.02 SYSTEM KEYING

- A. All system locks, key switches, etc., shall match existing keying.

2.03 ACCESSORIES

- A. Include accessories required to perform the functions summarized in DESCRIPTION OF COMPLETED SYSTEM and indicated on the drawings.

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

- A. Testing Existing System:
 - 1. Testing shall be witnessed by a Company Field Advisor and the Director's Representative.
- B. Conduct tests that are disruptive to facility personnel after normal working hours as directed.

3.02 INTERRUPTIONS TO EXISTING SYSTEMS

- A. Maintain the existing system in its present condition to the extent possible while installing new Work.
- B. Prior to making changes or removals relative to the existing system, notify the Director's Representative and have procedures approved.
- C. When removals are required to the existing fire alarm system such that its ability to act as a fire alarm system is impaired, provide a temporary fire alarm system so that the building is protected at all times by a functioning fire alarm system. Notify Building Supervisor (thru Director's Representative) of proposed temporary measures and scheduling. Both the proposed temporary measures and the scheduling must be approved by the Director's Representative.
- D. Provide signs, instructions, and alternate methods for reporting a fire.

3.03 INSTALLATION

- A. Install the Work in accordance with the Company's printed instructions unless otherwise indicated.
- B. Reprogram the system to include new monitor and control points and update existing system program to include changes and additions requested by facility.
 - 1. Obtain from the facility personnel through the Director's Representative, a list of desired system program changes, additions, etc.
- C. Do not install smoke detecting devices until the Work (including cleaning) of all trades in the area has been completed. Protect installed smoke detecting devices from airborne dust and debris.
- D. Mount smoke detecting devices, and seal air holes in the back of the devices (including interior of raceways and holes associated with installation of boxes and raceways) so that air flow from inside of housing or from the periphery of

the housing will not prevent entry of smoke during a fire or test condition. Seal air holes with gaskets, expanding silicone foam, or other sealants as approved.

3.04 FIELD QUALITY CONTROL

- A. Preliminary System Test:
 - 1. Preparation: Have the Company Field Advisor adjust the portion of the system applicable to the Work, and then operate it long enough to assure that it is performing properly.
 - 2. Run a preliminary test for the purpose of:
 - a. Determining whether the system is in a suitable condition to conduct an acceptance test.
 - b. Checking and adjusting equipment.
 - c. Training facility personnel.
- B. System Acceptance Test:
 - 1. Preparation: Notify the Director's Representative at least 3 working days prior to the test so arrangements can be made to have a Facility Representative witness the test.
 - 2. Supply all equipment necessary for system adjustment and testing.
 - 3. Make the following tests:
 - a. Test the portion of the system applicable to the Work in accordance with NFPA 72, Chapter 7.
 - 1) Follow test methods stated in Table 7-2.2.
 - 2) Record results on NFPA 72 Figure 1-6.2.1 Record of Completion.
 - b. Test system operation step by step as summarized in DESCRIPTION OF COMPLETED SYSTEM.
 - 4. Submit written report of test results signed by a Company Field Advisor and the Director's Representative. Also complete an NFPA Record of Completion.
 - a. Mount a copy of the written report of test results, and the NFPA 72 Record of Completion in plexiglass enclosed frame assemblies adjacent to the PSS (one framed assembly for each report).
- C. Conduct tests that are disruptive to facility personnel after normal working hours as directed.

END OF SECTION

SECTION 283106**NEW FIRE ALARM SYSTEM****PART 1 - GENERAL****1.01 DESCRIPTION**

- A. The requirements of the Contract Documents, including the General and Supplementary General Condition and Division 1 - General Requirements shall apply to the work of this section.
- B. At the time of bid, all exceptions taken to these Specifications, all variances from these Specification and all substitutions of operating capabilities or equipment called for in these Specification shall be listed in writing and forwarded to the Engineer. Any such exception, variances or substitutions that were not listed at the time of bid and are identified in the submittal, shall be grounds for immediate disapproval without comment.
- C. The entire system shall be installed with aesthetics in mind. All Fire Alarm control panels and remote annunciators installed in public spaces shall be semi-flush mounted with no exposed conduit or cable trays.

1.02 WORK INCLUDED

- A. The work covered by this Section of the Specification shall include all labor, equipment, materials and services to furnish and install a complete fire alarm system of the addressable, non-coded type. It shall be complete with all necessary hardware, software and memory specifically tailored for this installation. It shall be possible to permanently modify the software on site by using a plug-in programmer. The system shall consist of, but not be limited to, the following:
 - 1. Fire Alarm Control Panel.
 - 2. Remote Annunciator(s) with semi flush backbox.
 - 3. Addressable manual fire alarm pull stations.
 - 4. Addressable analog area smoke detectors.
 - 5. Addressable analog duct smoke detectors.
 - 6. Addressable combination carbon monoxide / smoke detectors.
 - 7. Magnetic door/card access release override control.
 - 8. Audible notification appliances - speakers.
 - 9. Visual notification appliances - strobes.
 - 10. Central station alarm connection control.
 - 11. Air handling systems shutdown control.
 - 12. Magnetic door holder release.
 - 13. Battery standby.

1.03 APPLICABLE CODES AND STANDARDS

- A. All equipment shall be UL listed for its intended use and conform to the latest UL Standards.

- B. Underwriters Laboratories Inc.: The system and all components shall be listed by Underwriters Laboratories Inc. for use in fire protective signaling system under the following standards as applicable:

UL 864/UOJZ, APOU Control Units for Fire Protective Signaling Systems.
 UL 268 Smoke Detectors for Fire Protective Signaling Systems.
 UL 268A Smoke Detectors for Duct Applications.
 UL 217 Smoke Detectors Single Station.
 UL 521 Heat Detectors for Fire Protective Signaling Systems.
 UL 228 Door Holders for Fire Protective Signaling Systems.
 UL 464 Audible Signaling Appliances.
 UL 1638 Visual Signaling Appliances.
 UL 38 Manually Activated Signaling Boxes.
 UL 346 Waterflow Indicators for Fire Protective Signaling Systems.
 UL 1971 Standard for Signaling Devices for the Hearing Impaired
 UL 1481 Power Supplies for Fire Protective Signaling Systems.
 UL 1711 Amplifiers for Fire Protective Signaling Systems.
 UUKL The Fire Alarm system shall be UUKL for Smoke Control.

- C. This installation shall comply with:
1. Americans with Disabilities Act (ADA)
 2. National Electric Code, Article 760.
 3. National Fire Protection Association Standards: NFPA72
 4. Local and State Building Codes and the Local Authorities Having Jurisdiction.
 5. International Standards Organization (ISO): ISO-9001

1.04 RELATED DOCUMENTS

- A. Secure permits and approvals prior to installation.
- B. Prior to commencement and after completion of work notify the AHJ (Authorities Having Jurisdiction).
- C. Submit letter of approval for installation before requesting acceptance of system.

1.05 RELATED WORK

- A. The Contractor shall coordinate work in this Section with all related trades. Work and/or equipment provided in other Sections and related to the fire alarm system shall include, but not be limited to:
1. Duct smoke detectors shall be furnished and installed by the Mechanical Contract and wired and connected by the Electrical Contract. The Mechanical Contract shall furnish necessary duct opening to install the duct smoke detectors.
 2. New air handling and smoke exhaust system fan control circuits and status contacts to be furnished by the HVAC control equipment.
 3. Dry pipe/deluge sprinkler system release valve control circuits and supervision contacts shall be provided by the dry pipe/deluge sprinkler system control equipment.
 4. Interior Raceways: Section 260532.
 5. Wire and Cables: Section 260519.

6. Installing dedicated outgoing RJ-31X telephone lines (2) shall be the responsibility of the Installing Electrical Contractor. Establishment of central station monitoring account shall be the responsibility of the fire alarm equipment vendor.

1.06 SUBMITTALS

- A. Provide a list of all types of equipment and components provided. This shall be incorporated as part of a Table of Contents, which will also indicate the manufacturer's part number, the description of the part, and the part number of the manufacturer's product datasheet on which the information can be found.
- B. Provide description of operation of the system (Sequence of Operation), similar to that provided in Part 2 of this Section of the Specifications, to include any and all exceptions, variances or substitutions listed at the time of bid. Any such exceptions, variances or substitutions that are not listed at the time of bid and are identified in the submittal, shall be grounds for immediate disapproval without comment. The sequence of operation shall be project specific and shall provide individual sequences for every type of alarm, supervisory, or trouble condition, which may occur as part of normal or off-normal system use.
- C. Provide manufacturer's printed product data, catalog cuts and description of any special installation procedures. Poorly photocopied and/or illegible product data sheets shall not be acceptable and shall be rejected. All product datasheets shall be highlighted or stamped with arrows to indicate the specific components being submitted for approval.
- D. Provide manufacturer's operator's instruction manual for the specified Fire Alarm System.
- E. Provide samples of various items when requested.
- F. Provide copy of State License to perform such work.
- G. Provide copies of NICET Level II Fire Alarm certifications for the two (2) technicians assigned to this project.
- H. Provide shop drawings as follows:
 1. Coversheet with project name, address and drawing index.
 2. General notes drawing with peripheral device backbox size information, part numbers, device mounting height information, and the names, addresses, point of contact, and telephone numbers of all contract project team members.
 3. Fire Alarm Riser Diagram that individually depicts all control panels, annunciators, addressable devices, and notification appliances. Shall include a specific, proposed point descriptor above each addressable device. Shall include a specific, discrete point address, which shall correspond to addresses depicted on the device layout floor plans. Drawing shall provide wire specifications, and wire tags shown on all conductors depicted on the riser diagram. All circuits shall have designations that shall correspond with those require on the control panel and floor plan drawings. End-of-line resistors (and values) shall be depicted.
 4. Fire Alarm Control panel termination drawing(s). Shall depict internal component placement and all internal and field termination points. Drawing shall provide a detail indicating where conduit penetrations shall be made, so as to avoid conflicts

with internally mounted batteries. For each additional data-gathering panel, a separate control panel drawing shall be provided, which clearly indicated the designation, service and location of the control enclosure. End-of-line resistors (and values) shall be depicted.

5. See section 3.4 DOCUMENTATION AND TRAINING for other documents relating to this section.
 6. Device typical wiring diagram drawing(s) shall be provided which depict all system components, and their respective field wiring termination points. Wire type, gauge, and jacket shall also be indicated. When an addressable module is used in multiple configurations for monitoring or controlling various types of equipment, different device typical diagrams shall be provided. End-of-line resistors (and values) shall be depicted.
 7. Device layout floor plans shall be created for every area served by the fire alarm system. REVIT Files shall be provided by the consulting engineer for the fire alarm system equipment vendor in the preparation of the floor plans. Floor plans shall indicate accurate locations for all control and peripheral devices. Drawings shall be NO LESS THAN 1/8 INCH SCALE. All addressable devices shall be depicted with a discrete address that corresponds with that indicated on the Riser Diagram. All notification appliances shall also be provided with a circuit address that corresponds to that depicted on the Riser Diagram. If individual floors need to be segmented to accommodate the 1/8" scale requirements, KEY PLANS and BREAK-LINES shall be provided on the plans in an orderly and professional manner. End-of-line resistors (and values) shall be depicted.
 8. Contained in the title block of each drawing shall be symbol legends with device counts, wire tag legends, circuit schedules for all addressable and notification appliance circuits, the project name/address, and a drawing description which corresponds to that indicated in the drawing index on the coversheet drawing. A section of each drawing title block shall be reserved for revision numbers and notes. The initial submission shall be Revision 0, with Revisions/Addendums 1, 2 or 3 as project modifications require.
- I. Battery calculations shall be provided on a per power supply/charger basis. These calculations shall clearly indicated the quantity of devices, the device part numbers, the supervisory current draw, the alarm current draw, totals for all categories, and the calculated battery requirements (which reflect a 20% DEGRADE, for 24 Hour supervisory, 5 minute alarm operation). Battery calculations shall also reflect all control panel component, remote annunciator, and auxiliary relay current draws. Failure to provide these calculations shall be grounds for the complete rejection of the submittal package.
 - J. Table of contents, product data sheets, sequences of operation, battery calculations, installation instructions, licenses, NICET certifications and B-Size (blackline) reduced shop drawings shall be provided by the fire alarm vendor as part of a single, spiral bound submittal book. The submittal book shall have laminated covers indicating the project address, project number, system type, and contractor. The book shall consist of labeled dividers, and shall not exceed 9 1/2" in width, and 11 1/2" in height. No less than three (3) sets of submittal booklets shall be provided to the consulting engineer for review and comment. Additional copies may be required at no additional cost to the project.
 - K. Scale drawing sets shall be submitted along with the submittal booklets. These drawings may be either D-Size or E-Size Blue-line drawings and of a sufficient resolution to be

completely read. Sets shall be bound and folded so as to not take up more than 100 square inches of space. No less than three (3) sets of scale drawing sets shall be provided to the consulting engineer for review and comment. Additional copies may be required at no additional cost to the project.

1.07 WARRANTY

- A. All work performed and all material and equipment furnished under this contract shall be free from defects and shall remain so for a period of at least one (1) year from the date of acceptance or approval by AHJ. The full cost of maintenance, labor and materials required to correct any defect during this one year period shall be included in the submittal bid.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. The catalog numbers used are those of Edwards EST by Carrier Corporation” or equal” and constitute the type and quality of equipment to be furnished. Alternate product submissions made without proof of no less than three (3) factory authorized and certified manufacturer’s distributors residing within 50 miles of the project job site shall be rejected. These distributors must not only provide installation support but must have a service organization capable of 24-hour emergency call service and **MUST HAVE BEEN CONTRACTED AND DELIVERED NO LESS THAN FIVE (5) ACCEPTED PROJECTS USING THE SUBMITTED PRODUCT OVER THE PAST YEAR.**
- B. Alternate product submissions based upon use of a product line considered proprietary in its distribution, design, application software, or ongoing maintenance and repair shall not be acceptable. Proof of a product’s non-proprietary nature shall be the burden of the contractor at the time of Bid and shall be in the form of written documentation. The determination of a product’s compliance to this requirement shall be exclusively that of the Consulting Engineer.
- C. All products used shall be of a single manufacturer. Submission of notification appliances, auxiliary relays, or documentation from other than a single manufacturer shall not be acceptable and will be grounds for immediate disapproval without comment.
- D. Alternate product submissions must, at the time of Bid, include a correspondence from the manufacturer indicating that the submitted product will continue to be manufactured in its current form for no less than five (5) more years, and thereafter will have factory inventory support for an additional seven (7) years.

2.02 CIRCUITING GUIDELINES

- A. Each Signaling Line Circuit (SLC) shall be circuited so device loading is not to exceed 80% of loop capacity in order to leave for space for future devices. The loop shall have Class B operation.

- B. Where it is necessary to interface conventional initiating devices provide intelligent input modules to supervise Class B zone wiring.
- C. Each of the following types of devices or equipment shall be provided with supervised circuits as shown on the drawings but shall be typically as follows:
 - 1. Sprinkler Valve Supervisory Switches: Provide one (1) supervisory module circuit for each sprinkler valve supervisory switch.
 - 2. When waterflow and tamper switches exist at the same location, provide one (1) dual input addressable module. When odd numbers of devices exist at a single location, provide additional single input addressable modules.
- D. Each of the following types of alarm notification appliances shall be circuited as shown on the drawings but shall be typically as follows:
 - 1. Audible Signals: Provide sufficient spare capacity to assure that the addition of five (5) audible devices can be supported without the need for addition control components (power supplies, signal circuit modules, batteries, etc.).
 - 2. Visual Signals Provide sufficient spare capacity to assure that the addition of three (3) visual devices can be supported without the need for addition control components (power supplies, signal circuit modules, batteries, etc.).
- E. Each of the following types of remote equipment associated with the fire alarm system shall be provided with a form 'C' control relay contact as shown on the drawings, but shall be typically as follows:
 - 1. HVAC Fan Systems: Provide one (1) shutdown control relay contact for each HVAC fan system.
 - 2. HVAC Supply Fans: Provide one (1) shutdown control relay contact for each HVAC supply fan.
 - 3. HVAC Return Fans: Provide one (1) shutdown control relay contact for each HVAC return fan.
- F. Provide a dedicated 24VDC circuit to feed all auxiliary relays required for inductive loads. These circuits shall be supervised via an end-of-line relay and addressable input module. Auxiliary relays shall not derive their power from the starter or load being controlled.
- G. Each control or data gathering panel shall have a dedicated 20Amp-120VAC feed. This feed shall come from an emergency or lighting circuit breaker panel, and shall have a locked circuit breaker. Earth grounds shall also terminate to the same circuit breaker panel from each respective control panel.

2.03 FIRE ALARM SYSTEM SEQUENCE OF OPERATION

- A. The system shall identify any off normal condition and log each condition into the system database as an event.
 - 1. The system shall automatically display on the control panel Liquid Crystal Display the first event of the highest priority by type. The priorities and types shall be alarm, supervisory, trouble, and monitor.
 - 2. The system shall have a Queue operation and shall not require event acknowledgment by the system operator. The system shall have a labeled color-coded indicator for each type of event; alarm - red, supervisory - yellow, trouble -

yellow, monitor - yellow. When an unseen event exists for a given type, the indicator shall light.

3. For each event, the display shall include the current time, the total number of events, the type of event, time the event occurred and up to a 40 character custom user description.
4. The user shall be able to review each event by simply selecting scrolling keys (up-down) for each event type.
5. New alarm, supervisory, or trouble events shall sound an audible signal at the control panel.

B. Operation of any alarm-initiating device shall automatically:

1. Update the control/display as described above (A.1.).
2. Sound all audible appliances in a Temporal-3 Pattern. ALL AUDIBLE APPLIANCES SHALL BE SYNCHRONIZED WITH EACH OTHER WHEN TWO OR MORE SPEAKERS CAN BE HEARD. Audible devices shall have the ability to be silenced.
3. Activate all strobe appliances throughout the facility. ALL STROBE APPLIANCES SHALL BE SYNCHRONIZED WITH EACH OTHER, IN ANY LOCATION WITH TWO OR MORE DEVICES IN A COMMON FIELD OF VIEW. Visual devices shall be non-silenced unless the system is successfully reset.
4. Operate control relay contacts to shutdown all HVAC units serving the floor of alarm initiation.
5. Operate control relay contacts to return all elevators that serve the floor of alarm initiation to the ground floor. If the alarm originates from the ground floor, operate control circuits contacts to return all elevators to the floor above or to a level as directed by the local fire department.
6. Operate control relay contacts to release all magnetically held smoke doors throughout the building.
7. Visually annunciate the individual point of alarm on all remote annunciator panels. The visual indication shall remain on until the alarm condition is reset to normal.
8. Transmit an alarm condition, via the integral central station communicator, to central station/Local Fire Department (as required by the AHJ).

C. Smoke detector sequences shall comply with the ANSI A17.1 requirements for main/alternate floor recalls, and shunt trip activations.

D. The entire Fire Alarm System wiring shall be electrically supervised to automatically detect and report trouble conditions to the fire alarm control panel. Any opens, grounds or disarrangement of system wiring and shorts across alarm signaling wiring shall automatically:

1. Update the control/display as described above (A.1.).
2. Transmit a trouble condition, via the integral central station communicator, to central station/Local Fire Department (as required by the AHJ).
3. Visually and audibly annunciate a general trouble condition, on the remote annunciator panels. The visual indication shall remain on until the trouble condition is repaired.

2.04 SUPPORT FOR INSTALLER AND OWNER MAINTENANCE

- A. Provide a coded one-man walk test feature. Allow audible or silent testing. Signal alarms and troubles during test. Allow receipt of alarms and programmed operations for alarms from areas not under test.
- B. Provide internal system diagnostics and maintenance user interface controls to display/report the power, communication, and general status of specific panel components, detectors, and modules.
- C. Provide loop controller diagnostics to identify common alarm, trouble, ground fault, Class A fault, and map faults. Map faults include wire changes, device type changes by location, device additions/deletions and conventional open, short, and ground conditions. Ground faults on the circuit wiring of remote module shall be identified by device address.
- D. Allow the user to display/report the condition of addressable analog detectors. Include device address, device type, percent obscuration, and maintenance indicator. The maintenance indicator shall provide the user with a measure of contamination of a device upon which cleaning decisions can confidently be made.
- E. Allow the user to report history for alarm, supervisory, monitor, trouble, smoke verification, watchdog, and restore activity. Include Facility Name, Licensee, Project Program Compilation date, Compiler Version, Project Revision Number, and the time and date of the History Report.
- F. Allow the user to disable/enable devices, zones, actions, timers and sequences. Protect the disable function with a password.
- G. Allow the user to activate/restore outputs, actions, sequences, and simulate detector smoke levels.
- H. Allow the service user to enter time and date, reconfigure an external port for download programming, initiate auto programming and change passwords. Protect these functions with a password.
- I. THE END-USER SHALL RETAIN COMPLETE OWNERSHIP TO THE PROGRAMMING DATABASE RUNNING IN THE SYSTEM. The fire alarm equipment vendor shall provide useable hard and soft copies of the software database to the End-User at the end of the warranty period. The database provided shall be useable by any authorized and certified distributor of the product line and shall include all applicable passwords necessary for total and unrestricted use and modification of the database. The Consulting Engineer shall define the extent of hardcopy database documentation to be provided.

2.05 UL LISTED AND APPROVED EQUIPMENT

- A. The Fire Alarm Control Panel shall contain a microprocessor with 10/100 ethernet media access controller (MAC). The system shall be designed specifically for fire detection, and notification applications. The control panel shall be listed and approved for the

application standard(s) as listed under the General section. Panel shall be Edwards - EST iO64.

- B. The control panel shall include all required hardware, software and system programming to provide a complete and operational system. The control panel shall assure that life safety takes precedence among all panel activities.
- C. The control panel shall include the following capacities:
 - 1. Support up to 64 analog/addressable points.
 - 2. Support up to 8 fully supervised remote annunciators.
 - 3. Support digital dialer with Contact ID format
 - 4. Support up to 1000 chronological events.
- D. The control panel shall include the following features:
 - 1. Ability to download or upload site applications and system diagnostics remotely through an Ethernet connection, or DACT.
 - 2. Provide electronic addressing of analog/addressable devices. Rotary and dip switch addressing shall not be considered equal.
 - 3. Provide an operator interface display that shall include functions required to annunciate, command and control system functions.
 - 4. Provide an internal audible signal with different programmable patters to distinguish between alarm, supervisory, trouble and monitor conditions.
 - 5. Provide system reports that provide detailed description of the status of system parameters for corrective action or for preventative maintenance programs. Reports shall be displayed by the operator interface or capable of being printed on a printer.
 - 6. Provide an authorized operator with the ability to operate or modify system functions like system time, date, passwords, holiday dates, restart the system and clear control panel event history file.
 - 7. Provide an authorized operator to perform test functions within the installed system.
- E. The control panel shall provide the following intelligent and intuitive diagnostic software tools.
 - 1. Fast Ground Check: Allow quick wiring diagnostics for ground faults every 4 seconds to troubleshoot ground faults much quicker and determine if they have been fixed or not.
 - 2. Recalibrate Device: The control panel recalibrates any devices that have been cleaned. The Recalibrate Device feature will immediately reset the environmental compensation and dirtiness levels for faster verification of cleaned devices.
 - 3. Test Fire
 - a. The control panel sends a test command to a detector or input module to activate. This allows for proper operation and programming testing of the device.
 - 4. Flash Device LED
 - a. It shall be possible to activate any device LED from the control panel menu to help troubleshooting or locate a specific device on a loop.

5. Walk Test: Walk test will allow the operator to test individual zones or devices without placing an alarm event on the system.
 - a. It shall be possible to perform a walk test in a silent or audible test mode. Silent test mode shall display the test results on the LCD display. Audible test confirmation shall sound a coded signal on the systems NAC circuits.
 - b. It shall be possible to activate Walk Test by zone or device to ensure the balance of the system remains in service to protect the premises.
 - c. It shall be possible to view and print a walk test report showing the activation and restoration of all walk test events.
 6. Device Maintenance: It shall be possible to view and print a report of all detectors dirtiness levels to optimize cleaning schedules. The report shall filter for all devices, devices that are 20% dirty or devices that are 80% dirty. The report shall show the device, how dirty it is by percentage and its sensitivity setting.
 - a. Detectors shall automatically send an alert message to the LCD Users Interface and illuminate the service detector LED when they reach 80% dirty and latch a trouble when they reach 100% dirty to ensure maintenance action is performed.
- F. Main Operators Display Operations:
1. Provide a discreet system control switch provided for reset, alarm silence, panel silence, remote disconnect, drill switch, and up/down/right/left switches.
 2. Backlit LCD display shall be 80 character display.
 - a. Each point shall have a 40 character custom message.
 3. Service Detector LED: Provide indication when a detector needs servicing
 4. Programmable Switches: Provide minimum of 2 programmable switches with corresponding LED. The switches shall be programmed for disable/enable or activate restore functions as follows;
 - a. Disable NAC
 - b. Disable Elevator Recall
 - c. Disable Fan Shutdown
 5. Alarm and Trouble Annunciator: Provide minimum of 16 zones of LED annunciation with red alarm and yellow trouble indicators; 4 zones may be utilized for supervisory zone annunciation. Devices on addressable loop circuits shall be identified by display or their address and by their condition (alarm, pre-alarm, monitor, supervisory, and trouble).
- G. Smoke-Alarm Verification:
1. Initiate an audible and visible indication of an "alarm-verification" signal at fire-alarm control unit.
 2. Activate an NRTL-listed and -approved "alarm-verification" sequence at fire-alarm control unit and detector.
 3. Record events by the system printer.
 4. Sound general alarm if the alarm is verified.
 5. Cancel fire-alarm control unit indication and system reset if the alarm is not verified.
- H. Digital Alarm Communicator Transmitter: The system shall have an integrated off premise communications capability using a digital alarm communications transmitter (DACT) for sending system events to multiple central monitoring station (CMS) receivers. The system shall provide the CMS(s) with point identification of system events using Contact ID protocol. The dialer shall have the capability to support up to two (2)

individual accounts and to send account information to two (2) different receivers, each having a primary and secondary telephone access number. System events shall be capable of being directed to one or more receivers depending on event type or location as specified by the system designed.

1. Digital data transmission shall include the following (Contact ID)
 - a. Address of the alarm-initiating device.
 - b. Loss of ac supply or loss of power.
 - c. Low battery.
 - d. Abnormal test signal.
 - e. Communication bus failure
 2. Shall be EST, model SA-DACT.
- I. Ethernet Port: Provide a standard 10/100 Base T Ethernet port for connecting to an intranet or a local network. This connection shall support the downloading of configuration programming to the panel over the network and provide the capability of diagnostic information from a remote location.
1. Shall be EST, model SA-ETH
- J. Alpha-Numerical Pager Interface: The system shall transmit an alphanumeric system activity message, by event, by point descriptor to a commercial paging system of the owner's choice, using TAP Pager protocol.
1. Shall be EST, model API-8/232.
- K. NAC Power Supply: The NAC power supply shall be independent unit that will provide power to visual strobe notification appliances. It shall be possible to configure the NACs to follow the main panel's NAC or activate from intelligent synchronized modules. The booster NAC's must be configurable to operate independently at any one of the following rates: continuous synchronized, or 3-3-3 temporal. Fault conditions on the power supply shall not impede alarm activation of host NAC circuits or other power supplies. The NAC power supply must be able to provide concurrent power for notification devices, security devices, access control equipment and auxiliary devices such as door holders. All the NAC Power Supplies shall be synchronized. The power supply shall support up to 24 amp hour batteries.
1. Power supply shall be minimum of 10 amps and UL 864 Listed.
 2. Four independent 3amp NAC circuits. Each being configurable as auxiliary power.
 3. All circuits shall be synchronized.
 4. Shall be EST, model BPS10A.
- L. SYSTEM PRINTER: Printout of Events: On receipt of signal, print alarm, supervisory, and trouble events. Identify zone, device, and function. Include type of signal (alarm, supervisory, or trouble) and date and time of occurrence. Differentiate alarm signals from all other printed indications. Also print system reset event, including same information for device, location, date, and time. Commands initiate the printing of a list of existing alarm, supervisory, and trouble conditions in the system and a historical log of events.
1. Each control panel shall be capable of supporting a printer. All control panel printer ports shall be configurable to output any combination of alarm, supervisory, trouble, monitor, or group event messages.
 2. Printer shall be EST, model PT-1S

- M. Remote LCD Annunciator: shall have LCD display functions for alarm, supervisory, and trouble indications and common system controls including acknowledge/silence, signal silence, reset, drill, and lamp test. Annunciator must support a 24 LED expander. Shall be housed in a metal enclosure with key lock door.
 - 1. This annunciator shall be EST, model RLCD or RLED series.

2.06 COMPONENTS

- A. Intelligent Devices — General: Each remote device shall have a microprocessor with non-volatile memory to support its functionality and serviceability. Each device shall store as required for its functionality the following data: device serial number, device address, device type, personality code, date of manufacture, hours in use, time and date of last alarm, amount of environmental compensation left/used, last maintenance date, job/project number, current detector sensitivity values, diagnostic information (trouble codes) and algorithms required to process sensor data and perform communications with the loop controller. Each device shall be capable of electronic addressing, either automatically or application programmed assigned, to support physical/electrical mapping and *supervision by location*. Setting a device's address by physical means shall not be necessary.
- B. Intelligent Detectors — General: The System Intelligent Detectors shall be capable of full digital communications using both broadcast and polling protocol. Each detector shall be capable of performing independent fire detection algorithms. The fire detection algorithm shall measure sensor signal dimensions, time patterns, and combine different fire parameters to increase reliability and distinguish real fire conditions from unwanted deceptive nuisance alarms. Signal patterns that are not typical of fires shall be eliminated by digital filters. Devices not capable of combining different fire parameters or employing digital filters shall not be acceptable. Each detector shall have an integral microprocessor capable of making alarm decisions based on fire parameter information stored in the detector head. Distributed intelligence shall improve response time by decreasing the data flow between detector and analog loop controller. Detectors not capable of making independent alarm decisions shall not be acceptable. Maximum total analog loop response time for detectors changing state shall be 0.5 seconds. Each detector shall have a separate means of displaying communication and alarm status. A green LED shall flash to confirm communication with the analog loop controller. A red LED shall flash to display alarm status. The detector shall be capable of identifying up to 32 diagnostic codes. This information shall be available for system maintenance. The diagnostic code shall be stored at the detector. Each smoke detector shall be capable of transmitting pre-alarm and alarm signals in addition to the normal, trouble and need cleaning information. It shall be possible to program control panel activity to each level. Each smoke detector may be individually programmed to operate at any one of five (5) sensitivity settings. Each detector microprocessor shall contain an environmental compensation algorithm that identifies and sets ambient "Environmental Thresholds" approximately six times an hour. The microprocessor shall continually monitor the environmental impact of temperature, humidity, other contaminants as well as detector aging. The process shall employ digital compensation to adapt the detector to both 24-hour long term and 4-hour short-term environmental changes. The microprocessor shall monitor the environmental compensation value and alert the system operator when the detector approaches 80% and 100% of the allowable environmental compensation value. Differential sensing algorithms shall maintain a constant differential between selected detector sensitivity and the "learned" base line sensitivity. The base line sensitivity

information shall be updated and permanently stored at the detector approximately once every hour. The intelligent analog detectors shall be suitable for mounting on any Signature Series detector mounting base.

- C. Photoelectric Smoke Detector, SIGA-PD: Provide intelligent photoelectric smoke detectors SIGA-PD. The analog photoelectric detector shall utilize a light scattering type photoelectric smoke sensor to sense changes in air samples from its surroundings. The integral microprocessor shall dynamically examine values from the sensor and initiate an alarm based on the analysis of data. Systems using central intelligence for alarm decisions shall not be acceptable. The detector shall continually monitor any changes in sensitivity due to the environmental effects of dirt, smoke, temperature, aging and humidity. The information shall be stored in the integral processor and transferred to the analog loop controller for retrieval using a laptop PC or the SIGA-PRO Signature Program/Service Tool. The photo detector shall be rated for ceiling installation at a minimum of 30 ft (9.1m) centers and be suitable for wall mount applications. The photoelectric smoke detector shall be suitable for direct insertion into air ducts up to 3 ft (0.91m) high and 3 ft (0.91m) wide with air velocities up to 5,000 ft/min. (0-25.39 m/sec) without requiring specific duct detector housings or supply tubes. The percent smoke obscuration per foot alarm set point shall be field selectable to any of five sensitivity settings ranging from 1.0% to 3.5%. The photo detector shall be suitable for operation in the following environment: Temperature: 32oF to 120oF (0oC to 49oC), Humidity: 0-93% RH, non-condensing, Elevation: no limit.
- D. Addressable Carbon Monoxide (CO) Detector, EST model SIGA-COD with sounder base. Provide intelligent addressable Carbon Monoxide Alarms as shown on the project plans. The CO detection element shall indicate a trouble condition at the FACP signaling end of life. The CO detector shall be UL 2075 listed.
- E. Standard Detector Mounting Bases, SIGA-SB / SIGA-SB4: Provide standard detector mounting bases SIGA-SB suitable for mounting on North American 1-gang, 3½” or 4” octagon box and 4” square box. The base shall, contain no electronics, support all Signature Series detector types and have the following minimum requirements: Removal of the respective detector shall not affect communications with other detectors, Terminal connections shall be made on the room side of the base, bases that must be removed to gain access to the terminals shall not be acceptable. The base shall be capable of supporting one (1) Signature Series SIGA-LED Remote Alarm LED Indicator. Provide remote LED alarm indicators where shown on the plans.
- F. Audible Detector Mounting Base, SIGA-AB4GT. Where shown on the project plans include detector audible/sounder base model SIGA-AB4GT. The sounder base shall be capable of two tones, Temporal 3 for a fire condition and Temporal 4 for a Carbon monoxide condition. The tones shall be fully programmable and also synchronize the sound with other sounder bases. The system shall be UL2017 listed for dual signaling for this purpose.
- G. Duct Detector Housing, SIGA-SD: Provide model SIGA-SD Low profile intelligent addressable DUCT smoke detector as indicated on the project plans. Provide for variations in duct air velocity between 100 and 4,000 feet per minute and include a wide sensitivity range of .79 to 2.46%/ft. Obscuration. Include one Form-C shut down relay rated 2.0 amps @ 30 Vdc and also include slave high contact relays if required. Provide an air exhaust tube and an air sampling inlet tube that extends into the duct air stream up

to ten feet. The addressable DUCT housing shall be suitable for extreme environments, including a temperature range of -20 to 158 degrees F (-29 to 70 degrees Celsius) and offer a harsh environment gasket option. Provide Remote Alarm LED Indicators SIGA-LED and/or remote test station model SD-TRK as indicated on the project plans.

- H. Intelligent Modules — General: It shall be possible to address each Intelligent Signature Series module without the use of DIP or rotary switches. Devices using DIP switches for addressing shall not be acceptable. The personality of multifunction modules shall be programmable at site to suit conditions and may be changed at any time using a personality code downloaded from the Analog Loop Controller. Modules requiring EPROM, PROM, ROM changes or DIP switch and/or jumper changes shall not be acceptable. The modules shall have a minimum of 2 diagnostic LEDs mounted behind a finished cover plate. A green LED shall flash to confirm communication with the loop controller. A red LED shall flash to display alarm status. The module shall be capable of storing up to 24 diagnostic codes which can be retrieved for troubleshooting assistance. Input and output circuit wiring shall be supervised for open and ground faults. The module shall be suitable for operation in the following environment:
 - 1. Temperature: 32oF to 120oF (0oC to 49oC), Humidity: 0-93% RH, non-condensing.
- I. Single Input Module, SIGA-CT1 (Waterflow Detectors, Tamper Switches etc.): Provide intelligent single input modules SIGA-CT1. The Single Input Module shall provide one (1) supervised Class B input circuit capable of a minimum of 4 personalities, each with a distinct operation. The module shall be suitable for mounting on North American 2 ½” (64mm) deep 1-gang boxes and 1 ½” (38mm) deep 4” square boxes with 1-gang covers. The single input module shall support the following circuit types: Normally-Open Alarm Latching (Manual Stations, Heat Detectors, etc.), Normally-Open Alarm Delayed Latching (Waterflow Switches), Normally-Open Active Non-Latching (Monitor, Fans, Dampers, Doors, etc.), Normally-Open Active Latching (Supervisory, Tamper Switches).
- J. Dual Input Module, SIGA-CT2: Provide intelligent dual input modules SIGA-CT2. The Dual Input Module shall provide two (2) supervised Class B input circuits each capable of a minimum of 4 personalities, each with a distinct operation. The module shall be suitable for mounting on North American 2 ½” deep 1-gang boxes and 1 ½” (38mm) deep 4” square boxes with 1-gang covers. The dual input module shall support the following circuit types: Normally-Open Alarm Latching (Manual Stations, Heat Detectors, etc.), Normally-Open Alarm Delayed Latching (Waterflow Switches), Normally-Open Active Non-Latching (Monitor, Fans, Dampers, Doors, etc.), Normally-Open Active Latching (Supervisory, Tamper Switches).
- K. Single Input Signal Module, SIGA-CC1: Provide intelligent single input signal modules SIGA-CC1. The Single Input (Single Riser Select) Signal Module shall provide one (1) supervised Class B output circuit capable of a minimum of 2 personalities, each with a distinct operation. When selected as a telephone power selector, the module shall be capable of generating its own “ring tone”. The module shall be suitable for mounting on North American 2 ½” (64mm) deep 2-gang boxes and 1 ½” (38mm) deep 4” square boxes with 2-gang covers, or European 100mm square boxes. The single input signal module shall support the following operations: Audible/Visible Signal Power Selector (Polarized 24 Vdc @ 2A).

- L. Control Relay Module, SIGA-CR: Provide intelligent control relay modules SIGA-CR. The Control Relay Module shall provide one form “R” dry relay contact rated at 2 amps @ 24 Vdc to control external appliances or equipment shutdown. The control relay shall be rated for pilot duty and releasing systems. The position of the relay contact shall be confirmed by the system firmware. The control relay module shall be suitable for mounting on North American 2 ½” (64mm) deep 1-gang boxes and 1 ½” deep 4” square boxes with 1-gang covers.
- M. Intelligent Manual Pull Stations — General: It shall be possible to address each Signature Series fire alarm pull station without the use of DIP or rotary switches. Devices using DIP switches for addressing shall not be acceptable. The manual stations shall have a minimum of 2 diagnostic LEDs mounted on their integral, factory assembled single or two stage input module. A green LED shall flash to confirm communication with the loop controller. A red LED shall flash to display alarm status. The station shall be capable of storing up to 24 diagnostic codes that can be retrieved for troubleshooting assistance. Input circuit wiring shall be supervised for open and ground faults. The fire alarm pull station shall be suitable for operation in the following environment:
 - 1. Temperature: 32oF to 120oF (0oC to 49oC), Humidity: 0-93% RH, non-condensing.
- N. Manual Pull Station, SIGA-270: Provide intelligent single action, single stage fire alarm stations SIGA-270. The fire alarm station shall be of metal construction with an internal toggle switch. Provide a locked test feature. Finish the station in red with silver “PULL IN CASE OF FIRE” English lettering. The manual station shall be suitable for mounting on North American 2 ½” (64mm) deep 1-gang boxes and 1 ½” (38mm) deep 4” square boxes with 1-gang covers.
- O. Notification Appliances – General: All appliances shall be UL Listed for Fire Protective Service. All strobe appliances or combination appliances with strobes shall be UL 1971 and ULC S526 Listed. All appliances shall be of the same manufacturer as the Fire Alarm Control Panel (**NO EXCEPTIONS**) specified to ensure absolute compatibility between the appliances and the control panels, and to insure that the application of the appliances are done in accordance with the single manufacturers’ instructions. Any appliances that do not meet the above requirements and are submitted for use must show written proof of their compatibility for the purpose intended. Such proof shall be in the form of documentation from **THE CONTROL PANEL MANUFACTURER** clearly stating that the control equipment (as submitted) is 100% compatible with the submitted Notification Appliances.
- P. Strobes, G1RF-VM Series: Provide EST Series G1RF-VM series low profile wall mounted strobes at the locations shown on the drawings. Strobes shall provide synchronized flash outputs. Strobe output shall be field selectable as indicated on the drawings in one of the following intensity levels; 15cd, 30cd, 75cd or 110cd. Low profile strobes shall mount in a North American 1-gang box or surface mounted on a matching back box provided by the manufacturer, as directed in the field.
- Q. Temporal Speaker Strobes, G1RF-HDVM Series: Provide EST Series E85001 low profile wall mount speaker/strobes at the locations shown on the drawings. The speaker/strobe shall provide an audible output of 84.4 dBA at 10 ft at the high setting and for smaller room size locations (as indicated on the plans) a low dB setting (field selectable) of 79.4 dB at 10 ft. when measured in reverberation room per UL-464.

Strobes shall provide synchronized flash outputs. The strobe output shall be as indicated on the drawings in one of the following field selectable intensity levels; 15cd, 30cd, 75cd & 110cd devices. The horn shall have a selectable steady or synchronized temporal output. Low profile horn/strobes shall mount in a North American 1-gang box or surface mounted on a matching back box provided by the manufacturer, as directed in the field.

- R. Multi-Voltage Control Relays, MR-200 Series: Provide remote control relays connected to supervised ancillary circuits for control of fans, dampers, door releases, etc. Relay contact ratings shall be DPDT and rated for 10 amperes at 115 Vac. A single relay may be energized from a voltage source of 24 Vdc, 24 Vac, 115 Vac, or 230 Vac. A red LED shall indicate the relay is energized. A metal enclosure shall be provided.
- S. STI Stopper II Lexan Guards: Manual pull stations that are provided with STI Stopper II lexan guards shall include non-audible alarms as required on the plans. They shall be surface or flush mounting, as required for each individual device. Stopper Covers shall only be included on devices shown on the plans to include them.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The entire Fire Alarm System shall be installed in a workmanlike manner, in accordance with approved manufacturer's wiring diagram. The Electrical Contract shall furnish all conduit, wiring, outlet boxes, junction boxes, cabinets, and similar devices necessary for the complete installation. All wiring shall be of the type recommended by the manufacturer, approved by the local Fire Department and/or AHJ and specified herein.
- B. All penetration of floor slabs and firewalls shall be sleeved (1" conduit minimum) fire stopped in accordance with all local fire codes.
- C. End of Line Resistors shall be furnished as required for mounting as directed by the manufacturer. Devices containing end-of-line resistors shall be appropriately labeled. Devices should be labeled so removal of the device is not required to identify the EOL device.
- D. All manual pull stations shall be mounted 48 inches above the finished floor, as measured to the handle of the station.
- E. All audio/visual devices shall be mounted 80 inches above the finished floor, as measured to the lens. Devices shall be mounted no less than 6 inches from the ceiling.
- F. Area smoke detectors shall not be mounted within 36 inches of any HVAC supply, return air register or lighting fixture.
- G. No area smoke or heat detector shall be mounted within 12 inches of any wall. All detectors shall be installed in strict accordance with NFPA 72 guidelines for such devices.

- H. All mechanical rooms, boiler rooms, wiring closets, janitor's closets, attic spaces, etc. or areas with no hung ceilings shall be piped with 3/4" conduit. All device plenum rated wiring shall be mechanically protected with conduit.
- I. All boxes must be painted red and labeled "FIRE ALARM".
- J. All addressable modules shall be mounted within 36 inches of the monitored or controlled point of termination. This shall include, but is not necessarily limited to, fan shutdown, elevator recall, shunt trip, sprinkler status points, or door release. Label all addressable modules as to their function.
- K. Door holders shall derive their 24VAC/VDC power from a separate power supply housed in a dedicated, metal enclosure. The power supply shall have a 120VAC feed and is to be centrally located to serve all other door holders on a floor or area basis. Locations and quantities of door holder power supplies shall be referenced and submitted in the submission package for approval by the Consulting Engineer.
- L. All low voltage wiring terminated to the fire alarm system shall be PLENUM RATED with no exceptions and no less than No. 18 AWG in size, and solid copper.
- M. All line voltage (120VAC) wiring shall be no less than No. 12 AWG in size, and solid copper. This shall include all system grounding. FACP must have a DEDICATED 20 Amp circuit marked back at the power panel NO EXCEPTIONS.
- N. All wiring shall be color-coded throughout, to National Electrical Code standards.
- O. Power-limited/Non-power-limited NEC wiring standards SHALL BE OBSERVED.
- P. All junction box covers shall be painted federal safety red and labeled FIRE ALARM SYSTEM ONLY in black letters.
- Q. Fire Alarm system wiring shall not co-mingle with any other system wiring in the facility. Conduits shall not be shared under any circumstance. Only when fire alarm wiring enters the enclosure of a monitored or controlled system will co-habitation be permitted (i.e. at fan starters or elevator controllers). THIS WILL BE FIELD INSPECTED BY A COMPANY FIELD ADVISOR.
- R. Fire alarm control panel enclosures shall have engraved labels indicating, "FIRE ALARM SYSTEM", and the areas of the building served by that panel.
- S. Auxiliary relays shall be appropriately labeled to indicate "FIRE ALARM SYSTEM" and their specific function (i.e. FAN S-1 SHUTDOWN).
- T. All fire alarm wiring shall be continuous and unspliced. Terminations shall only occur at fire alarm devices or control panel enclosures under terminal screws. All other splicing methods are specifically disallowed (i.e., plastic wirenuts).
- U. All fire alarm wiring shall be installed using a dedicated system of supports (i.e. bridle rings). Fire alarm wiring shall not be bundled or strapped to existing conduit, pipe or wire in the facility. THIS WILL BE FIELD INSPECTED BY A COMPANY FIELD ADVISOR.

- V. All fire alarm wiring shall be sleeved when passing through any wall, using conduit sleeves (1" min.) with bushings, and fire stopped in accordance with Code.
- W. The system shall be arranged to receive power as indicated on the contract drawings. All low voltage operation shall be provided from the fire alarm control panel.
- X. All fire alarm devices shall be accessible for periodic maintenance. Should a device location indicated on the Contract Drawings not meet this requirement, it shall be the responsibility of the installing contractor to bring it, in writing, to the attention of the Director's Representative. Failure to bring such issues to the attention of Director's Representative shall be the exclusive liability of the installing Electrical Contractor.
- Y. The existing Fire Alarm Control Panel shall remain in operation until such time that approval has been granted for its removal. The installing Electrical Contractor shall be responsible for the upkeep of the existing system until such time that it can be removed.
- Z. The installing Electrical Contractor shall be responsible for the removal of ENTIRE existing fire alarm system components and controls on the demolition drawing shown or not, upon approval of the AHJ and the Consulting Engineer. The End-User reserves the right to retain any existing fire alarm system components, upon their request. All existing fire alarm system components requiring special handling for disposal (due to radioactivity) shall be the responsibility of the installing contractor. Written proof of proper disposal by the installing contractor shall be required prior to release of outstanding retainage.

3.02 FIELD QUALITY CONTROL

- A. The system shall be installed and fully tested under the supervision of a trained Edwards manufacturer's representative. The system shall be demonstrated to perform all of the function as specified.
- B. The installing contractor or fire alarm equipment vendor shall be Edwards certified and approved and shall have no less than two (2) NICET Level II fire alarm technicians dedicated to this project.
- C. The Installing Contract and the Fire Alarm System Vendor shall, upon the request of the Consulting Engineer or End-User, attend any and all project meetings for the purpose of accurately determining progress.
- D. It shall be the responsibility of the installing contractor to assure that construction debris does not adversely affect any sensing devices installed as part of this project. Should it be deemed necessary by the Consulting Engineer, End-User or AHJ, the installing contractor shall be responsible for the cleaning of all smoke detectors prior to final acceptance.

3.03 TESTING

- A. The Fire Alarm System vendor shall test the system in accordance with the manufacturer's requirements and NFPA 72.
- B. Each individual system operation on a circuit-by-circuit basis shall be tested for its complete operation. The procedure for testing the entire fire alarm system shall be set

forth with the consent of the code enforcement official, the Engineer and the manufacturer.

3.04 DOCUMENTATION AND TRAINING

- A. The contractor shall compile and provide to the owners three (3) complete manual on the completed system to include SITE SPECIFIC operating and maintenance instruction, catalog cuts of all equipment and components, as-built wiring diagrams and a manufacturer's suggested spare parts list. An operational Video, on DVD media, shall also be included.
- B. In addition to the above manuals, the Electrical Contract shall provide the services of the manufacturer's trained representative for **two (2)** separate calendar days for a period of four **(4) hours** per day to instruct the owners' designated personnel on the operation and maintenance of the entire system.
- C. As-built drawings shall consist of the following:
 - 1. Complete revision of all previously submitted drawings
 - 2. Point-to-point depiction of all device wiring on the device layout floor plans.
 - 3. One (1) set of B-size, laminated as-built drawings.
 - 4. Two (2) sets of 24" x 36" 1/8"=1'-0" scale drawings showing all points of fire alarm. One set shall be submitted with the close-out documents. Second set shall be mounted in frame with a lexan cover. These drawings must be submitted to the Director's Representative for approval.
- D. Turnover of all software database hard/soft copies shall be required. This shall include all possible programming software logs, diskettes or CDs containing exported project files, hard copies of all device maps, the revision number of the version of programming utility used, and all required passwords. The turnover of all database information shall occur prior to the end of the One (1) warranty period (or period as amended earlier in this specification).

END OF SECTION

SECTION 310000

EARTHWORK

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Cast-In-Place Concrete: Section 033001.
- B. Site Restoration: Section 310101.

1.02 DEFINITIONS

- A. The following terms shall have the meanings ascribed to them in this Article, wherever they appear in this Section.
 - 1. Earth Excavation: The removal of all surface and subsurface material not classified as rock (as defined below).
 - 2. Rock: Limestone, sandstone, shale, granite, and similar material in solid beds or masses in its original or stratified position which can be removed only by blasting operations, drilling, wedging, or use of pneumatic tools, and boulders with a volume greater than 1.0 cu yd. Concrete building foundations and concrete slabs, not indicated, with a volume greater than 1.0 cu yd shall be classified as rock.
 - a. Limestone, sandstone, shale, granite, and similar material in a broken or weathered condition which can be removed with an excavator or backhoe equipped with a bucket with ripping teeth or any other style bucket shall be classified as earth excavation.
 - b. Masonry building foundations, whether indicated or not, shall be classified as earth excavation.
 - 3. Subgrade Surface: Surface upon which subbase or topsoil is placed.
 - 4. Subbase: Select granular material or subbase course Type 2, which is placed immediately beneath pavement or concrete slabs.
 - 5. Maximum Density: The dry unit weight in pounds per cubic foot of the soil at "Optimum Moisture Content" when determined by ASTM D 698 (Standard Proctor).
 - 6. Landscaped Areas: Areas not covered by structures, walks, roads, paving, or parking.
 - 7. Unauthorized Excavation: The removal of material below required elevation indicated on the Drawings or beyond lateral dimensions indicated or specified without specific written direction by the Director.

1.03 SUBMITTALS

- A. Samples: Submit samples as follows. Take the samples in the presence of the Director's Representative and submit to the Director's Representative the laboratory test results for gradation, proctors and soundness tests, when required. These tests shall be performed in accordance with ASTM standards, shall be performed and signed by a certified soils laboratory, and shall be submitted as

part of the original submittal. At a minimum the samples taken shall be of the following quantities:

1. Subbase Course Type 2: 50 - 60 lb. (Two Samples).
2. Cushion Material: 30 lb.

B. Quality Control Submittals:

1. Subbase Materials: Name and location of source and the DOT Source Number. If the material is not being taken from an approved DOT Source the results of the gradation and soundness tests performed by an ASTM certified soils laboratory will be required.
2. Other Aggregates: Name and location of source and soil laboratory test results.

1.04 PROJECT CONDITIONS

- A. Protect existing trees and plants during performance of the Work. Box trees and plants indicated to remain within the grading limits with temporary steel fencing or solidly constructed wood barricades as required. Protect root systems from smothering. Do not store excavated material or allow vehicular traffic or parking within the branch drip line. Restrict foot traffic to prevent excessive compaction of soil over root systems.
- B. Cold Weather Requirements: When freezing temperatures are predicted, do not excavate to final required elevations for pipe, conduit or equipment requiring concrete work unless concrete can be placed immediately. Retain enough earth over the bottom elevation of excavations to prevent frost penetration.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Subbase Course Type 2: Stockpiled, crushed ledge rock or approved blast furnace slag. Comply with the gradation and material requirements specified below:

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
2 inch	50.8	100
1/4 inch	6.35	25-60
No. 40	0.425	5-40
No. 200	0.075	0-10

1. Magnesium Sulfate Soundness Test: 20 percent maximum loss by weight after four test cycles.
2. Plasticity Index: The plasticity index of the material passing the No. 40 mesh sieve shall not exceed 5.0.
3. Elongated Particles: Not more than 30 percent, by weight, of the particles retained on a 1/2 inch sieve shall consist of flat or elongated

particles. A flat or elongated particle is defined as one which has its greatest dimension more than three times its least dimension.

- B. Suitable Material (Fill and Backfill for Landscaped Areas): Material consisting of mineral soil (inorganic), blasted or broken rock and similar materials of natural or man-made origin, including mixtures thereof. Maximum particle size shall not exceed 2/3 of the specified layer thickness prior to compaction. NOTE: Material containing cinders, industrial waste, sludge, building rubble, land fill, muck, and peat shall be considered unsuitable for fill and backfill, except topsoil and organic silt may be used as suitable material in landscaped areas provided it is placed in the top layer of the subgrade surface.
- C. Cushion Material: Shall consist of clean, hard, durable, uncoated particles, free from lumps of clay and all deleterious substances and shall meet the following gradation requirements:

Sieve Size		Percent Passing
Sieve Size	Size opening (mm)	
1/4 inch	6.35	100
No. 60	0.25	0-35
No. 100	0.15	0-10

- D. Marker Tape: FL Industries Blackburn/Holub's Type YT6, or Seton Nameplate Corporations Type 6 ELE, imprinted with message suited to item buried below.

PART 3 EXECUTION

3.01 REMOVAL OF TOPSOIL

- A. Remove existing topsoil from areas where excavation or fill is required.
- B. Stockpile approved topsoil where directed until required for use. Place, grade, and shape stockpiles for proper drainage.
1. Topsoil shall be tested prior to stockpiling. Stockpile only quantities of topsoil approved in writing for re-use. Dispose of excess topsoil as specified.

3.02 UNDERGROUND UTILITIES

- A. Locate existing underground utilities prior to commencing excavation work. Determine exact utility locations by hand excavated test pits. Support and protect utilities to remain in place.
- B. Do not interrupt existing utilities that are in service until temporary or new utilities are installed and operational.

3.03 EXCAVATION AND TRENCHING

- A. Excavate earth as required for the Work.

- B. Install and maintain all erosion and sedimentation controls during all earthwork operations as specified on the Contract Drawings or as directed by local officials. If the erosion and sedimentation controls specified by the local officials are more stringent than those specified on the Contract Drawings contact the Director's Representative.
- C. Maintain sides and slopes of excavations in a safe condition until completion of backfilling. Comply with Code of Federal Regulations Title 29 - Labor, Part 1926 (OSHA).
 - 1. Trenches: Deposit excavated material on one side of trench only. Trim banks of excavated material to prevent cave-ins and prevent material from falling or sliding into trench. Keep a clear footway between excavated material and trench edge. Maintain areas to allow free drainage of surface water.
- D. Stockpile excavated materials classified as suitable material where directed, until required for fill. Place, grade, and shape stockpiles for proper drainage as approved by the Director's Representative.
- E. Conduit, Cable, Tubing and Piping (other than Bell and Spigot): Provide sufficient trench width for installation and to accommodate special backfill when specified.
- F. Unauthorized Excavations: Unless otherwise directed, backfill unauthorized excavation under footings, foundation bases, and retaining walls with compacted select granular material without altering the required footing elevation. Elsewhere, backfill and compact unauthorized excavation as specified for authorized excavation of the same classification, unless otherwise directed by the Director.
 - 1. Unauthorized excavations under structural Work such as footings, foundation bases, and retaining walls shall be reported immediately to the Director before any concrete or backfilling Work commences.
- G. Notify the Director's Representative upon completion of excavation operations. Do not proceed with the Work until the excavation is inspected and approved. Inspection of the excavation by the Director's Representative will be made on 3 working days' notice.

3.04 DEWATERING

- A. Prevent surface water and subsurface or ground water from flowing into excavations and trenches. Pump out any accumulated water.
- B. Do not allow water to accumulate in excavations or trenches. Remove water from all excavations immediately to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to the stability of subgrades and foundations. Furnish and maintain pumps, sumps, suction and discharge piping systems, and other system components necessary to convey the water away from the Site.

- C. Convey water removed from excavations, and rainwater, to collecting or run-off area. Cut and maintain temporary drainage ditches and provide other necessary diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.
- D. Provide temporary controls to restrict the velocity of discharged water as necessary to prevent erosion and siltation of receiving areas.

3.05 PLACING FILL AND BACKFILL

- A. Surface Preparation of Fill Areas: Strip topsoil, remaining vegetation, and other deleterious materials prior to placement of fill. Break up or scarify old pavements to a maximum of 2 square feet. Prior to placement of fill, smooth out and compact areas where wheel rutting has occurred due to stripping or earthwork operations.
- B. Excavations: Backfill as promptly as Work permits, but not until completion of the following:
 - 1. Inspection, testing, approval, and recording locations of underground utilities.
 - 2. Removal of concrete formwork.
 - 3. Removal of trash and debris.
- C. Place backfill and fill materials in layers not more than 8 inches thick in loose depth unless otherwise specified. Before compaction, moisten or aerate each layer as necessary to facilitate compaction to the required density. Do not place backfill or fill material on surfaces that are muddy, frozen, or covered with ice. Do not backfill with excavated material unless it meets the requirements of this Section.
 - 1. Place fill and backfill against foundation walls, and in confined areas (such as trenches) not easily accessible by larger compaction equipment, in maximum 6 inch thick (loose depth) layers.
- D. Under Exterior Pavement and Walks:
 - 1. Up to Subgrade Surface Elevation: Place selected fill when fill or backfill is required.
 - 2. Subbase Material: Subbase Course Type 2 over subgrade surface.
- E. Landscape Areas: Place suitable material when required to complete fill or backfill areas up to subgrade surface elevation. Do not use material containing rocks over 4 inches in diameter within the top 12 inches of suitable material.
- F. Rigid Nonmetallic Conduit: Except where concrete encasement is required place cushion material a minimum of 3 inches deep under conduit, 3 inches on both sides, and 12 inches above top of conduit. Complete balance of backfill as specified.
- G. Marker Tape: Install marker tape 4 inches below finish grade directly over conduit.

3.06 COMPACTION

- A. All materials with exception of open graded stone (No. 2 Coarse aggregate, No. 1 Coarse aggregate, Item B-12, etc.):
 - 1. Compact each layer of fill and backfill for the following area classifications to the percentage of maximum density specified below and at a moisture content suitable to obtain the required densities, but at not less than three percent drier or more than two percent wetter than the optimum content as determined by ASTM D 698 (Standard Proctor).
 - a. Landscaped Areas: 90 percent.
 - b. Pavements and Walks: 95 percent.
 - c. Conduit Bedding: 95 percent.
 - 2. If a compacted layer fails to meet the specified percentage of maximum density, the layer will be re-compacted and retested. If compaction cannot be achieved the material/layer will be removed and replaced. No additional material may be placed over a compacted layer until the specified density is achieved.

3.07 GRADING

- A. Finish Grading: Finish surfaces free from irregular surface changes, and as follows:
 - 1. Grassed Areas: Finish areas to receive topsoil to within not more than 1 inch above or below the required subgrade surface elevations.
 - 2. Walks and Pavements: Place and compact subbase material as specified. Shape surface of areas to required line, grade and cross section, with the finish surface not more than 1/2 inch above or below the required subbase elevation.
- B. Spread approved topsoil, directly upon prepared subgrade surface to a depth measuring 4 inches after natural settlement of the topsoil has occurred in areas to be seeded or to receive sod. Provide greater depth to adjust grades when directed by the Director's Representative.
 - 1. Approved existing topsoil may be used. Provide additional topsoil from outside sources as required.
- C. Finish topsoil surface free of depressions which will trap water, free of stones over 1 inch in any dimension, and free of debris.

3.08 RESTORATION

- A. Restore pavements, walks, curbs, lawns, and other exterior surfaces damaged during performance of the Work to match the appearance and performance of existing corresponding surfaces as closely as practicable.
- B. Topsoil and seed or sod damaged lawn areas. Water as required until physical completion of the Work.

3.09 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Remove from State Property and dispose of excess and unsuitable materials, including materials resulting from clearing and grubbing and removal of existing improvements.

3.10 FIELD QUALITY CONTROL

- A. Compaction Testing: Notify the Director's Representative at least 3 working days in advance of all phases of filling and backfilling operations. Compaction testing will be performed by the Director's Representative to ascertain the compacted density of the fill and backfill materials. Compaction testing will be performed on certain layers of the fill and backfill as determined by the Director's Representative. If a compacted layer fails to meet the specified percentage of maximum density, the layer shall be recompact and will be retested. No additional material may be placed over a compacted layer until the specified density is achieved.

3.11 PROTECTION

- A. Protect graded areas from traffic and erosion and keep them free of trash and debris.

END OF SECTION

SECTION 310101
SITE RESTORATION

PART 1 GENERAL

1.01 QUALITY ASSURANCE

- A. Provide prepackaged seed readily available to the public with quality and purity equal to product of O.M. Scotts and Son, Marysville, OH 43041. On-the-job or made-to-order mixes will not be accepted.

1.02 DELIVERY STORAGE AND HANDLING

- A. Deliver fertilizer in manufacturer's standard size bags or cartons showing weight, analysis, and the name of the manufacturer. Store as approved by Director's Representative.
- B. Store all seed at the site in a cool dry place as approved by the Director's Representative. Replace any seed damaged during storage.

1.03 SCHEDULING

- A. Time For Seeding: Optimum period to sow permanent grass seed is generally between April 1st and May 15th or between August 15th and October 1st. Schedule application for when weather conditions permit or as Directed.
 - 1. Provide temporary seed and mulch when final grading is complete while waiting for optimal seeding period.
 - 2. Provide temporary seed and mulch for temporary cover on disturbed ground not to be worked on for more than 7 days.
 - 3. Provide temporary seed and mulch on disturbed earth prior to temporary shutdown of construction.

PART 2 PRODUCTS

2.01 TOPSOIL

- A. Provide topsoil conforming to the following:
 - 1. Original loam topsoil, well drained homogeneous texture and of uniform grade, without the admixture of subsoil material and entirely free of dense material, hardpan, sod, or any other objectionable foreign material.
 - 2. Containing not less than 4 percent nor more than 20 percent organic matter in that portion of a sample passing a 1/4 inch sieve when determined by the wet combustion method on a sample dried at 105 degrees C.
 - 3. Containing a Ph value within the range of 4.5 to 7 on that portion of the sample that passes a 1/4 inch sieve.

4. Containing the following gradations:

SIEVE DESIGNATION	PERCENT PASSING
1 inch	100
1/4 inch	97 - 100
No. 200	20 - 65 (of the 1/4 inch sieve)

2.02 FERTILIZER

- A. Fertilizer: Mixed commercial fertilizers shall contain total nitrogen, available phosphoric acid and soluble potash in the ratio of 10-6-4 (50% N/UF). 50% of total nitrogen shall be derived from ureaform furnishing a minimum of 3.5% water insoluble nitrogen (3.5% WIN). The balance of the nitrogen shall be present as methylene urea, water-soluble urea, nitrate and ammoniacal compounds.
- B. Other fertilizers meeting DOT Specification Section 713-03 Fertilizer can be used.

2.03 SEED

- A. Furnish fresh, clean, new-crop seed mixed in the proportions specified for species and variety and conforming to Federal and State Standards.
- B. Acceptable material in a seed mixture other than pure live seed consists of nonviable seed, chaff, hulls, live seed of crop plants and inert matter. The percentage of weed seed shall not exceed 0.1 percent by weight.
- C. All seed will be rejected if the label indicates any noxious weed seeds.
- D. Provide seed mixture equal to Scotts Pure Premium Sun and Shade North Grass Seed Mixture, comprised of the following:

SEED MIXTURE			
AMOUNT BY WEIGHT IN MIXTURE	SPECIES OR VARIETY *	PERCENTAGE	
		PURITY	GERMINATION
30 PERCENT	FENWAY RED FESCUE	97 PERCENT	80 PERCENT
30 PERCENT	ABBAY KENTUCKY BLUEGRASS BLEND	95 PERCENT	80 PERCENT
20 PERCENT	DEVINE PERENNIAL RYE	98 PERCENT	85 PERCENT
20 PERCENT	ENCHANTED PERENNIAL RYE	98 PERCENT	85 PERCENT
100 PERCENT			

*Variety may be altered depending on availability of seed from manufacturer.

2.04 MULCH

- A. Dry Application, Straw: Stalks of oats, wheat, rye, or other approved crops that are free of noxious weed seeds. Weight shall be based on a 15 percent moisture content.

PART 3 EXECUTION

3.01 SPREADING TOPSOIL

- A. Perform topsoil spreading operations only during dry weather.
- B. To ensure a proper bond with the topsoil, harrow or otherwise loosen the subgrade to a depth of 3 inches before spreading topsoil.
- C. Spread topsoil directly upon prepared subgrade to a minimum depth measuring 4 inches after natural settlement in areas to be seeded. Smooth out unsightly variations, bumps, ridges, and depressions that will hold water. Remove stones, litter, or other objectionable material. Finished surfaces shall conform to the contour lines and elevations indicated on the drawings or fixed by the Director's Representative.

3.02 PREPARATION FOR SEEDING

- A. Seed Bed: Scarify soil to a depth of 2 inches in compacted areas. Smooth out unsightly variations, bumps, ridges, and depressions that will hold water. Remove stones, litter, or other objectionable material.

3.03 FERTILIZING

- A. Apply 10-6-4 fertilizer evenly at the rate of 40 pounds per 1000 sq ft.

3.04 SEEDING

- A. Assume all risks when seed is sowed before approval of seed analysis.
- B. Do not seed when the wind velocity exceeds 5 miles per hour.
- C. Application Rate: 8 pounds per 1000 sq ft.
- D. Dry Application: Sow seed evenly by hand or seed spreader on dry or moderately dry soil.

3.05 MULCHING

- A. Dry Application: Within 3 days after seeding, cover the seeded areas with a uniform blanket of straw mulch at the rate of 50 pounds per 1000 sq ft of seeded area.

3.06 LAWN ESTABLISHMENT

- A. Maintain the grass at heights between 3 inches and 3-1/2 inches on a weekly basis until the Final Acceptance of the Work.
- B. Water and protect all seeded areas until final acceptance of the lawn.

3.07 FINAL ACCEPTANCE

- A. Final acceptance of seeded areas will be granted when a uniform stand of acceptable grass is obtained, with a minimum of 95 percent coverage. Portions of the seeded areas may be accepted at various times at the discretion of the Director's Representative.
- B. Unacceptable seeded areas, dry application: Reseed as specified and fertilized at one-half the specified rate.
- C. Once accepted, the State will assume all maintenance responsibilities.

END OF SECTION

SECTION 321216
ASPHALT PAVING

PART 1 GENERAL

1.01 REFERENCES

- A. New York State Department of Transportation (DOT) Specification section 400 dated January 1, 2023.
- B. AASHTO: M-288-17 Section A6, Paving Fabric.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Earthwork: Section 310000.

1.03 SUBMITTALS

- A. Product Data:
 - 1. Paving Synthetics: including Manufacturer's name, specifications, MSDS as required and installation instructions (including adhesion type and rate) for each item specified.
 - 2. Asphaltic Pavement: Include mix design from NYSDOT approved Batch Plant, Mix Design Test results that are less than 6 months old.
- B. Batch plant name, NYSDOT Plant Number, and location of asphalt plant.
- C. Pavement Quality Control Submittals: Material Delivery Tickets.
 - 1. At the time of delivery, a copy of the delivery ticket must be presented to the Director's Representative with the following minimum information:
 - a. Ticket Number.
 - b. Plant Identification.
 - c. Project Name.
 - d. Mix Type.
 - e. Quantity of material in vehicle.
 - f. Date and Time.

1.04 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. Discontinue paving when surface temperatures fall below requirements listed in DOT Table 404-1 unless otherwise specified in the General Conditions of this Contract or as directed by the Director's Representative.
 - 2. Do not place asphalt concrete on wet surfaces, or when weather conditions otherwise prevent the proper handling or finishing of bituminous mixtures as determined by the Director's Representative.
 - 3. Pavement is restricted by dates listed in the General Conditions or by temperatures.

PART 2 PRODUCTS

2.01 MATERIALS

- A. All aggregate used in design mixes shall be as specified in DOT Specification Section 401-2.02 B.; Coarse Aggregate Type F2 Conditions.
- B. Asphalt: Use aggregate and PG binder from suppliers listed in the NYS DOT's Approved List for Fine and Coarse Aggregates and Performance Graded (PG) Binders for Warm Mix Asphalt (WMA) Technology for paving respectively. Use of mineral filler or any other materials for the production of asphalt will be accepted in accordance with the State's written instructions.
- C. Supply approved asphalt mixtures that meet the requirements of NYS DOT MM 5.16 *Superpave Hot Mix Asphalt Mixture Design and Mixture Verification Procedures*. Each mixture must be obtained from a single plant for the duration of the project. The following NYS DOT items only shall be utilized for this project:
 - 1. 12.5 Top Course Asphalt (Large Parking Lots & Access Roads).
 - 2. 25.0 Binder Course Asphalt.
 - 3. 37.5 Base Course asphalt.
- D. Reclaimed Asphalt Pavement (RAP) will not be accepted.
- E. Asphalt Cement Tack Coat.

PART 3 EXECUTION

3.01 PRE-CONSTRUCTION MEETING

- A. The Director's Representative will conduct a Pre-Paving meeting prior to any Asphalt placement. The attendance at this meeting will include Contractor's Paving Superintendent, Chief Inspector or Paving Inspector(s), Asphalt plant representative, density gauge operator, depending on the compaction method used, and work zone traffic control (WZTC) competent person (if applicable). The contractor's Paving Superintendent must be prepared to discuss the operation necessary to complete the work successfully. Participants will review all aspects of the project requirements including, but not limited to, the following:
 - 1. Asphalt delivery temperature.
 - 2. Equipment and setup.
 - 3. Mix codes to ensure the correct mix is delivered.
 - 4. Frequency of testing.
 - 5. Density Gauge operator certification.
 - 6. Proper construction practice to provide quality product.
 - 7. Work zone traffic control activities necessary.

3.02 ASPHALT PAVING PLACEMENT & COMPACTION

- A. Prepare existing surfaces in accordance with DOT Section 404-3.05, *Conditioning of Existing Surface*.
- B. Apply Tack Coat in accordance with DOT Section 407-3.02, *Application of Tack Coat*, specifically Table 407-1 – Tack Coat Application Rates. The rates listed are recommended application rates for tack coat on various surfaces and may be modified by the Director's Representative.
- C. Spread and Finish asphalt in accordance with DOT Section 404-3.06, *Spreading and Finishing*.
- D. Provide compaction of asphalt in accordance with DOT Section 404-3.07, *Compaction*.
 - 1. Paragraph D. 80 Series Compaction Methods, specifically meeting the minimum requirements as shown in Table 404-3 Number of Passes. The Director's Representative may increase or decrease the number of passes to obtain adequate density of the compacted HMA.
 - 2. The Director's Representative may also approve alternate compaction procedures where the specified procedures are not applicable.
 - 3. Testing to be performed at the direction of and in locations chosen by the Director's Representative. Target compaction is 95% (92% - 97% range is acceptable).
- E. Asphalt joints shall be in accordance with DOT Section 404-3.09, *Joints*.
- F. Construct each pavement course to a 1/4" surface tolerance. The Director's Representative may test the surface with a 16-foot straight edge or string line placed parallel to the centerline of the pavement and with a 10-foot straight edge or string line placed transversely to the centerline of the pavement on any portion of the pavement. Variations exceeding 1/4 inch will be appropriately corrected or the pavement be removed and replaced at no additional cost to the State.
- G. The allowable thickness tolerance of all asphalt mixtures shall be:
 - 1. 1/4 inch or less when the total nominal thickness indicated on the plans is 4 inches or less.
 - 2. 1/2 inch or less when the total nominal thickness is over 4 inches but not more than 8 inches.
 - 3. When the asphalt mixture is placed on newly constructed subbase material, an additional tolerance of 1/4 inch will be allowed both in the nominal thickness of the course placed directly on the subbase and the total pavement thickness.
- H. Remove and restore paved areas that are defective or contaminated as delineated by the Director's Representative at no additional cost to the State.
- I. Do not clean tools and equipment used for asphalt placement on the pavement surface, or near streams, ponds, drainage structures or other areas that are tributaries to waterways. Use an area approved by the Director's Representative for cleaning all paving equipment and tools.

- J. Once pavement cures for a minimum of 24 hours, apply pavement markings with mechanical equipment to a minimum wet film thickness of 15 mils (0.4 mm), or as specified by the Manufacturer if greater.

END OF SECTION

1. A PORTION OF THE FACILITY INVOLVED WITH THE SCOPE OF WORK FOR THIS PROJECT WAS HISTORICALLY USED AS AN INDOOR FIRING RANGE (IFR). A LEAD REMEDIATION PROJECT WAS COMPLETED FOR THIS PORTION OF THE FACILITY, AND IN-PLACE CLEANING/ENCAPSULATION/ENCLOSURE OF LEAD DUST. A COMPREHENSIVE SURVEY FOR THE PRESENCE OF LEAD-BASED PAINT WAS PERFORMED FOR THIS FACILITY. SUSPECT LEAD-CONTAINING PAINT ANTICIPATED TO BE DISTURBED DURING CONSTRUCTION ACTIVITIES SHALL BE ASSUMED TO BE LEAD-BASED PAINT UNLESS SAMPLED TO DOCUMENT OTHERWISE, AND ASSUMED TO BE IDENTIFIED LEAD-CONTAINING PAINT. UNPAINTED SURFACES AND DUST ANTICIPATED TO BE DISTURBED DURING CONSTRUCTION ACTIVITIES SHALL BE MANAGED IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REQUIREMENTS.
2. IN ACCORDANCE WITH OSHA REQUIREMENTS (29 CFR 1926.62) – THE "LEAD IN CONSTRUCTION STANDARD", CONTRACTOR SHALL PROVIDE DOCUMENTATION OF COMPLIANT WORKER EXPOSURE ASSESSMENT PRIOR TO INITIATION OF WORK AND/OR PROVIDE APPROPRIATE PROTECTION FOR PERSONS LIKELY TO COME IN CONTACT WITH AIRBORNE LEAD DURING CONSTRUCTION/RENOVATION ACTIVITIES.
3. BULK SAMPLES OF PAINTED OR UNPAINTED SURFACES HAVE NOT BEEN SAMPLED AND ANALYZED FOR LEAD TO DETERMINE WHETHER THE WASTES GENERATED DURING DEMOLITION ARE CLASSIFIED AS HAZARDOUS WASTE, AS DEFINED UNDER RCRA. CONTRACTOR SHALL OBTAIN A LICENSED ANALYST TO ANALYZE SAMPLES AND SHALL CHARACTERIZE AND DISPOSE OF WASTE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS, INCLUDING BUT NOT LIMITED TO RCRA AND 6NYCRR.

1. ALL WORK SHALL COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
2. REFER TO SPECIFICATION 028213 FOR REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING MATERIALS, 028304 FOR THE HANDLING OF LEAD-CONTAINING MATERIALS, AND 028533 FOR THE TREATMENT OF MOLD-CONTAMINATED SURFACES.
3. REFER TO SPECIFICATION SECTION 003126 FOR EXISTING HAZARDOUS MATERIALS INFORMATION.
4. COORDINATE AND SCHEDULE ALL ASBESTOS REMOVALS WITH THE DIRECTOR'S REPRESENTATIVE AS THE ABATEMENT WORK AREA(S) WILL BE RESTRICTED TO CERTIFIED ABATEMENT WORKERS FOR THE DURATION OF THE ASBESTOS REMOVALS.
5. MAINTAIN A SECURE WORK AREA FOR THE DURATION OF THE ASBESTOS ABATEMENT PROJECT. COORDINATE PLACEMENT AND STAGING OF ALL EQUIPMENT AND DUMPSTERS WITH THE DIRECTOR'S REPRESENTATIVE.
6. IF ADDITIONAL SUSPECT MATERIALS OR CONFIRMED ASBESTOS-CONTAINING MATERIALS ARE ENCOUNTERED DURING THIS PROJECT, CEASE OPERATIONS AND NOTIFY THE DIRECTOR'S REPRESENTATIVE IMMEDIATELY. SUSPECT MATERIAL SHALL BE TREATED AS ASBESTOS-CONTAINING UNTIL SUCH TIME THAT IT CAN BE SAMPLED FOR APPROPRIATE LABORATORY ANALYSIS. IDENTIFICATION OF ADDITIONAL CONFIRMED ASBESTOS-CONTAINING MATERIALS SHALL BE INSPECTED AND QUANTIFIED BY THE DIRECTOR'S THIRD PARTY PROJECT MONITOR.
7. THE CONTRACTOR IS RESPONSIBLE FOR PREPARATION AND SUBMITTAL OF ANY SITE SPECIFIC VARIANCE DEEMED NECESSARY FOR THE SUCCESSFUL COMPLETION OF THIS ASBESTOS ABATEMENT PROJECT. PREPARE AND SUBMIT THE VARIANCE TO THE DIRECTOR'S REPRESENTATIVE FOR REVIEW PRIOR TO TRANSMITTING THE VARIANCE PETITION TO THE NEW YORK STATE DEPARTMENT OF LABOR (NYSDOL).
8. CONTACT DIRECTOR'S REPRESENTATIVE A MINIMUM OF 24 HOURS IN ADVANCE OF ALL SITE VISITS AND PROVIDE NAMES AND PHOTO IDENTIFICATION OF THOSE WHO WILL BE MAKING THE SITE VISIT. PHOTO IDENTIFICATION IS ALSO REQUIRED UPON ARRIVAL TO THE SITE.
9. ALL PAINTED SURFACES ARE ASSUMED TO BE COATED WITH LEAD-BASED PAINT. IN AREAS WHERE PAINT IS PRESENT, AND FASTENERS OR WALL PENETRATIONS ARE REQUIRED (E.G., FOR CONTAINMENT CONSTRUCTION OR SECURING TEMPORARY ENCLOSURES), PLACE DROP CLOTHS BELOW WORK PRIOR TO INITIATING, TO CONTAIN DUST. USE USEPRA REG. METHODS AND CLEAN AND DUST GENERATED VIA SWEEPING AND HEPA VACUUMING. AVOID CAUSING DAMAGE TO LBP SURFACES AND AVOID USING ADHESIVE TAPES ON SUSPECT LBP SURFACES. SEE SECTION 028303 FOR CLEANING AND DAMAGE REQUIREMENTS.
10. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ALL WASTE CHARACTERIZATION SAMPLING AND TESTING OF ALL MATERIALS REMOVED FROM THE ABATEMENT WORK AREAS PRIOR TO THE DISPOSAL OF ANY CONSTRUCTION DEBRIS.

- 1 REMOVE ASBESTOS-CONTAINING FLOOR TILES AND UNDERLYING ASBESTOS-CONTAINING MASTIC DOWN TO THE CONCRETE SUBSTRATE AND DISPOSE OF ALL REMOVED MATERIALS BY APPROPRIATE LEGAL MEANS. PROTECT ALL EXISTING FLOOR HATCHES AND PENETRATIONS.
- 2 REMOVE WALL WITHIN A NEGATIVE PRESSURE TENT CONTAINMENT UNDER ASBESTOS ABATEMENT CONTROLS AS NECESSARY TO ACCESS AND REMOVE PRESUMED ASBESTOS PIPE AND FITTING INSULATION WITHIN THE WALL CHASE. DISPOSE OF ALL REMOVED MATERIALS AS REGULATED ASBESTOS WASTE.
- 3 REMOVE PLASTER CEILING WITHIN A NEGATIVE PRESSURE TENT CONTAINMENT UNDER ASBESTOS ABATEMENT CONTROLS TO ACCESS AND REMOVE PRESUMED ASBESTOS PIPE AND FITTING INSULATION FROM THE CEILING SPACE. DISPOSE OF ALL REMOVED MATERIALS AS REGULATED ASBESTOS WASTE.
- 4 REMOVE AND DISPOSE OF PIPE AND FITTING INSULATION AS ASBESTOS.
- 5 REMOVE WINDOW SYSTEM IN ITS ENTIRETY INCLUDING ALL CAULKS AND SEALANTS AS ASBESTOS-CONTAINING. DISPOSE OF ALL REMOVED MATERIALS BY APPROPRIATE LEGAL MEANS.
- 6 CLEAN ALL WALLS AND CEILINGS OF ALL MOLD-GROWTH AND TREAT ALL SURFACES WITH A BIOCIDAL PER SECTION 028533.
- 7 REMOVE THE SKYLIGHT IN ITS ENTIRETY INCLUDING ALL CAULKS AND SEALANTS, AS WELL AS ALL ASSOCIATED ROOF FLASHINGS AS ASBESTOS. DISPOSE OF ALL REMOVED MATERIALS BY APPROPRIATE LEGAL MEANS.

 EXTENT OF ASBESTOS-CONTAINING FLOOR TILE AND ASBESTOS-CONTAINING MASTIC REMOVALS
 EXTENT OF WOOD STUD AND GYPSUM BOARD WALL REMOVALS TO ACCESS AND REMOVE ASBESTOS-CONTAINING FLOOR TILES AND ASSOCIATED MASTIC BENEATH.
 ESTIMATED EXTENT OF WALL REMOVALS TO ACCESS AND REMOVE ASBESTOS PIPE AND FITTING INSULATION WITHIN WALL CHASE.

SCOPE ITEM	LOCATION	ESTIMATED QUANTITY
ASBESTOS-CONTAINING FLOOR TILE AND MASTIC REMOVALS (CODED ABATEMENT NOTE 1)	CORRIDOR B-34	256 SF
	STORAGE B-36	264 SF
	STORAGE B-61	290 SF
	CORRIDOR B-53	736 SF
	WOMEN'S LOCKER B-64	258 SF
	CORRIDOR B-67	701 SF
	CORRIDOR B-68	106 SF
	CORRIDOR B-75	302 SF
WALL REMOVAL AND ASBESTOS PIPE AND FITTING INSULATION REMOVALS (CODED ABATEMENT NOTE 2)	CLASSROOM B-34B	100 SF OF GLAZED BLOCK AND PLASTER WALL REMOVAL 100 LF OF PIPE INSULATION AND 35 FITTINGS
	BATHROOM B-85	75 SF OF GLAZED BLOCK AND PLASTER WALL REMOVAL 75 LF OF PIPE INSULATION AND 28 FITTINGS
	BATHROOM B-85	100 SF OF FIXED PLASTER CEILING REMOVAL 75 LF OF PIPE INSULATION AND 28 FITTINGS
ASBESTOS PIPE AND FITTING INSULATION REMOVALS (CODED ABATEMENT NOTE 4)	LOCKERS B-37	150 LF OF PIPE INSULATION AND 30 FITTINGS
WINDOW REMOVALS - ACM CAULKS AND SEALANTS (CODED ABATEMENT NOTE 5)	ELECTRICAL PANEL ROOM	50 LF OF PIPE INSULATION AND 16 FITTINGS
	MECHANICAL ROOM B-66A	2 WINDOWS (24 LF OF SEALANTS PER WINDOW)
CLEANING OF MOLD-IMPACTED WALLS AND CEILINGS (CODED ABATEMENT NOTE 6)	ROOM B-66	588 SF
	MECHANICAL ROOM B-66A	690 SF
	STORAGE B-79	720 SF
SKYLIGHT, CAULKS, SEALANTS, AND ROOF FLASHING REMOVALS	AREAWAY B-88	100 SF



ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
AFF	ABOVE FINISHED FLOOR	GYP	GYPSUM
BD	BOARD	HDWD	HARDWOOD
BLKG	BLOCKING	HGT	HEIGHT
BM/ BMS	BEAMS/ BEAMS	JT	JOINT
BOT	BOTTOM	LVL	LAMINATED VENEER LUMBER
		LVT	LUXURY VINYL TILE
C.J.	CONTROL JOINT	LGMF	LIGHT GAGE METAL FRAMING
CL	CENTER LINE	MAS	MASONRY
CLG	CEILING	MIN	MINIMUM
CONC	CONCRETE	MAX	MAXIMUM
CONT	CONTINUOUS	MTL	METAL
CPT	CARPET	MECH	MECHANICAL
CT	CERAMIC TILE	MEP	MECHANICAL, ELECTRICAL, PLUMBING
CWJ	COMPOSITE WOOD JOIST	NIC	NOT IN CONTRACT
		NOM	NOMINAL
DTL	DETAIL	NTS	NOT TO SCALE
DIA	DIAMETER	OC	ON CENTER
DM	DETAIL MANUAL	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
DN	DOWN	PART	PARTITION
DWG	DRAWING	PLYWD	PLYWOOD
DW	DISHWASHER	PNT/ PTD	PAINT/PAINTED
		PT	PORCELAIN TILE
EA	EACH	PLUM	PLUMBING
EL/ ELEV	ELEVATION	R	RISER/ RADIUS
ELEC	ELECTRIC/ ELECTRICAL	RO	ROUGH OPENING
EQ	EQUAL	SL	SPRING LINE
EWJ	ENGINEERED WOOD JOIST		
		T	TREAD TOP
FLR	FLOOR	T&G	TONGUE AND GROOVE
FDN	FOUNDATION	TYP	TYPICAL
FTG	FOOTING		
FR	FIRE RESISTANT		
FA	FIRE ALARM		
FP	FIRE PROTECTION		

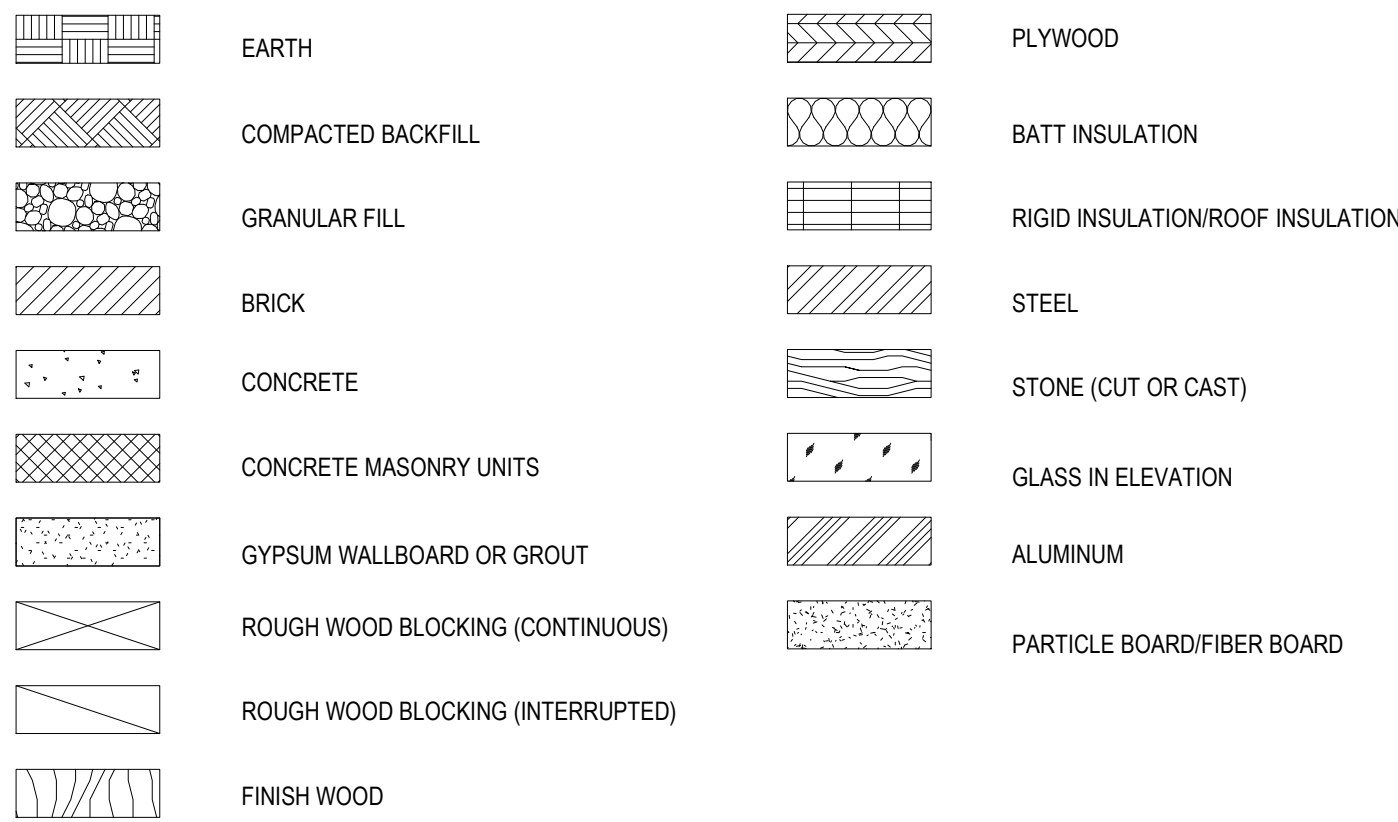
1 ABBREVIATIONS

N.T.S.

2 GENERAL NOTES

N.T.S.

- VERIFY ALL EXISTING CONDITIONS PRIOR TO BEGINNING WORK. REPORT ANY DISCREPANCY BETWEEN CONSTRUCTION DOCUMENTS AND ACTUAL CONDITIONS TO THE DIRECTOR'S REPRESENTATIVE.
- DO NOT SCALE THE DRAWINGS.
- C-CONTRACTOR TO COORDINATE MECHANICAL, PLUMBING AND ELECTRICAL TRADES.
- LOCATE ALL EXISTING UTILITIES AND SERVICES PRIOR TO START OF WORK.
- PROTECT, FROM DAMAGE, ALL ADJACENT AREAS AND PROPERTIES.
- ALL DIMENSIONS SHOWN TO FACE OF STUD OR CMU UNLESS OTHERWISE NOTED. VERIFY IN THE FIELD ALL DIMENSIONS. DIMENSIONS NOTED "CLEAR" ARE NOT TO BE ADJUSTED WITHOUT APPROVAL FROM DIRECTOR'S REPRESENTATIVE. ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS NOTED.
- CHALK LINE ALL PARTITIONS PRIOR TO COMMENCEMENT OF MASONRY AND STUD INTERIOR PARTITIONS. DIRECTOR'S REPRESENTATIVE SHALL BE NOTIFIED OF ANY DISCREPANCIES.



4 MATERIAL INDICATORS

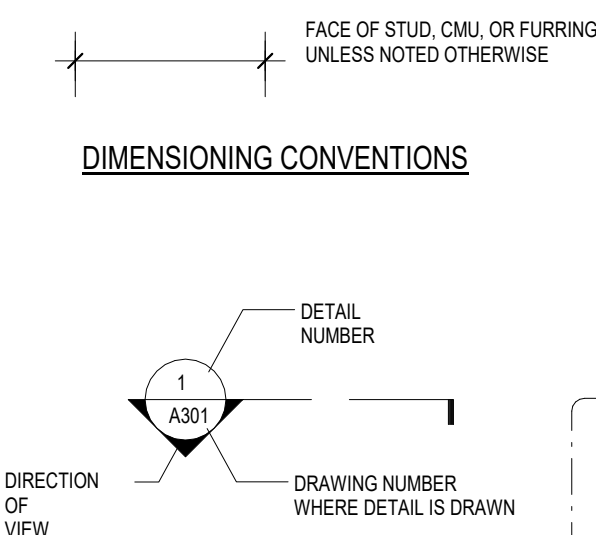
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3 DRAWING ORGANIZATION

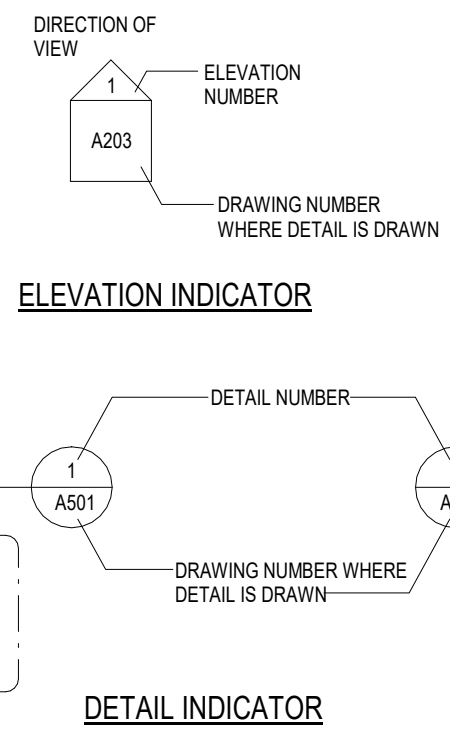
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ARCHITECTURAL DISCIPLINE PREFIX	GROUP DESIGNATION	DRAWING NUMBER
AD-101	REMOVAL PLANS	
A-101	FLOOR PLANS	
A-201	EXTERIOR ELEVATIONS & BUILDING SECTIONS	
A-301	WALL SECTIONS	
A-401	ENLARGED PLANS AND ELEVATIONS	
A-501	DETAILS	
A-601	SCHEDULES	
A-701	USER DEFINED	
A-801	USER DEFINED	
A-901	3D REPRESENTATION	

DIMENSIONING CONVENTIONS



ELEVATION INDICATOR



5 REFERENCE SYMBOLS

N.T.S.

6 SYMBOLS

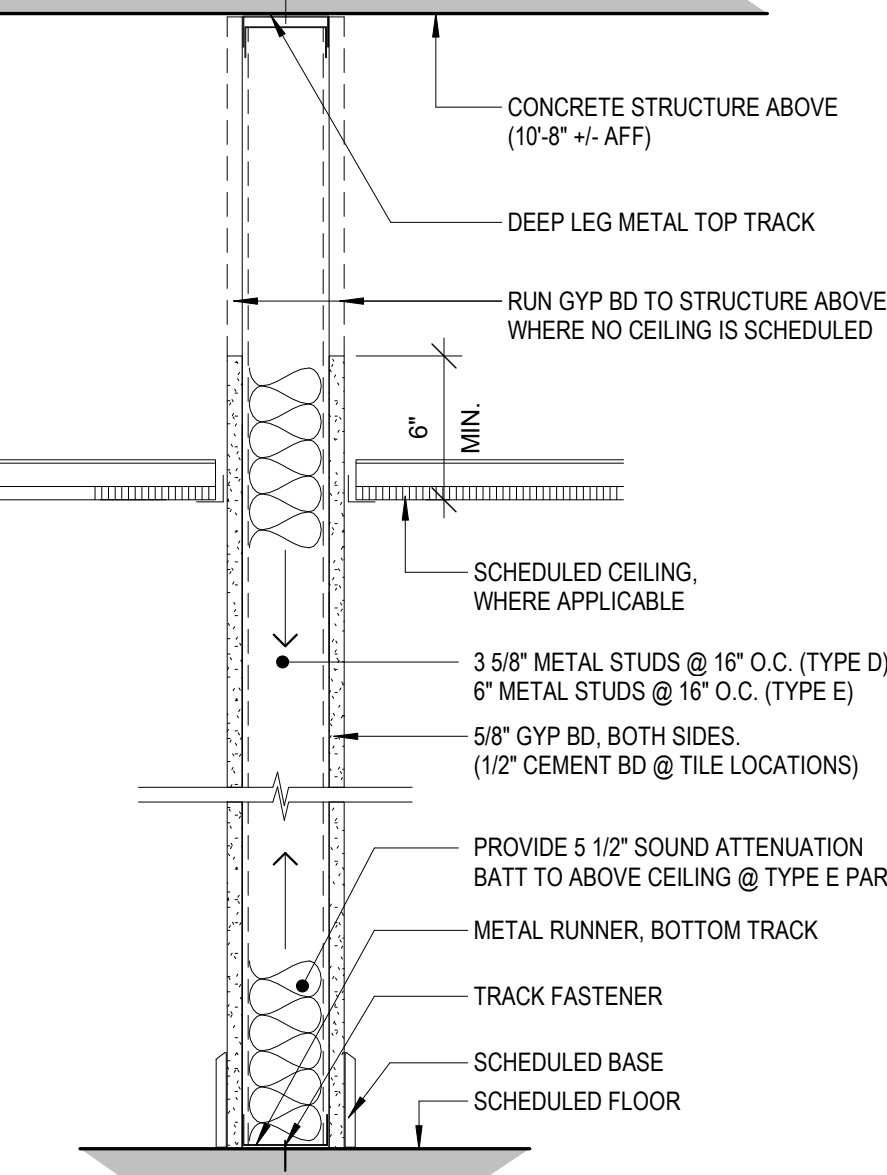
N.T.S.

OFFICE	ROOM NAME & NUMBERS	EQUIPMENT TAG
100		
(126B)	DOOR NUMBERS	
A	COLUMN NUMBERS	
00.00	ELEVATION TARGET	
A	INTERIOR GLAZING	
2	WINDOW/LOUVER TYPE	
2	REVISION NUMBER	
6A	ACCESSORY TAG	
A	WALL / PARTITION TYPES	
1	KEYED NOTE	

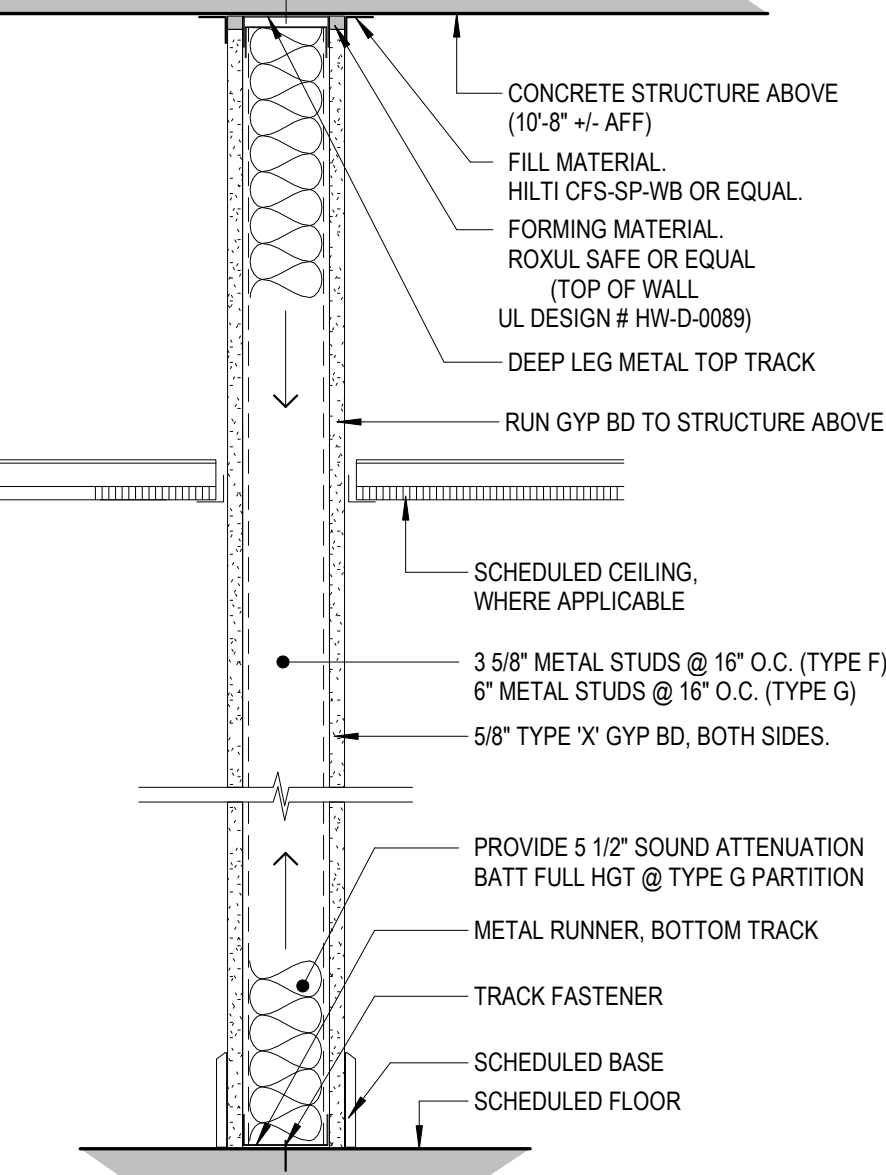
EQUIPMENT TAG LEGEND	
MBXX	MARKER BOARD
TBXX	TACK BOARD
MX	MIRROR
PS-X	PROJECTION SCREEN

WALL / PARTITION TYPES	
FE	FIRE EXTINGUISHER (NIC)
FEC	FIRE EXTINGUISHER CABINET
---	WALL TO BE REMOVED
---	WALL TO REMAIN
---	NEW WALL

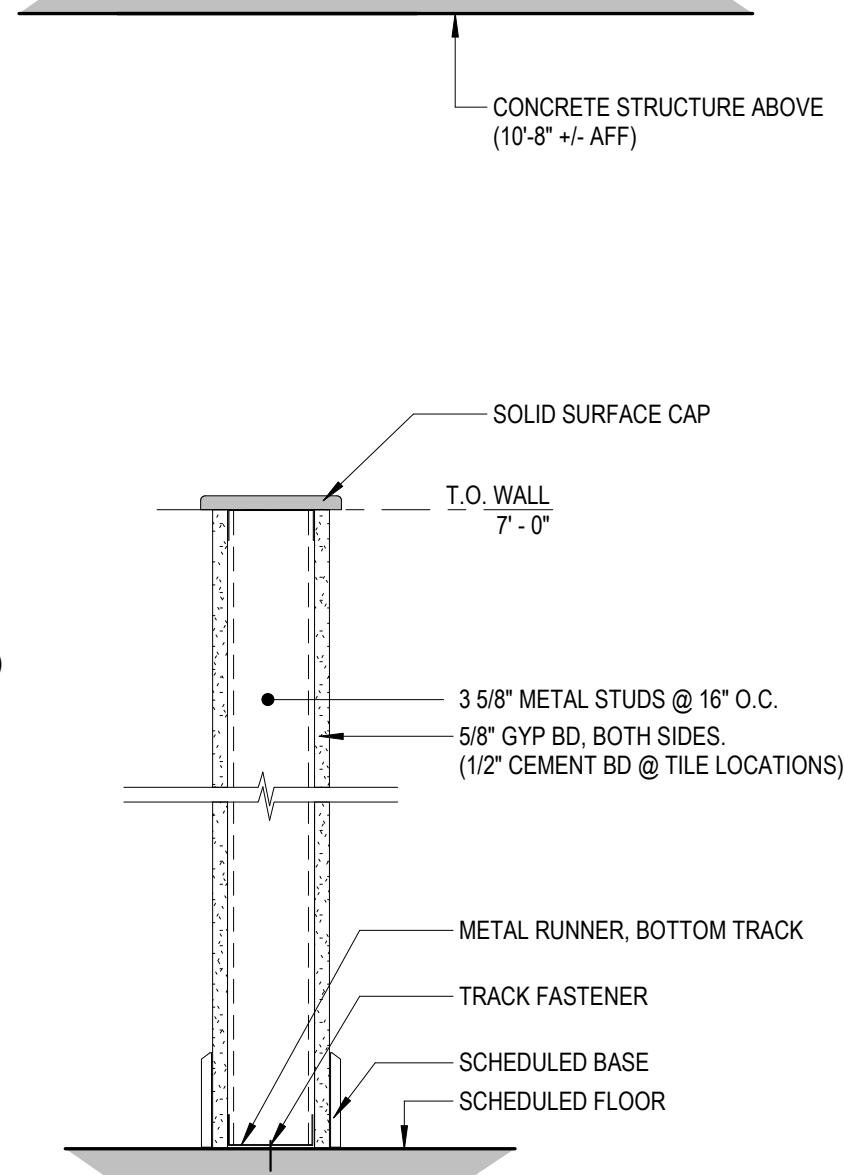
PARTITION TYPE 'A' - 7/8" MTL HAT CHANNELS



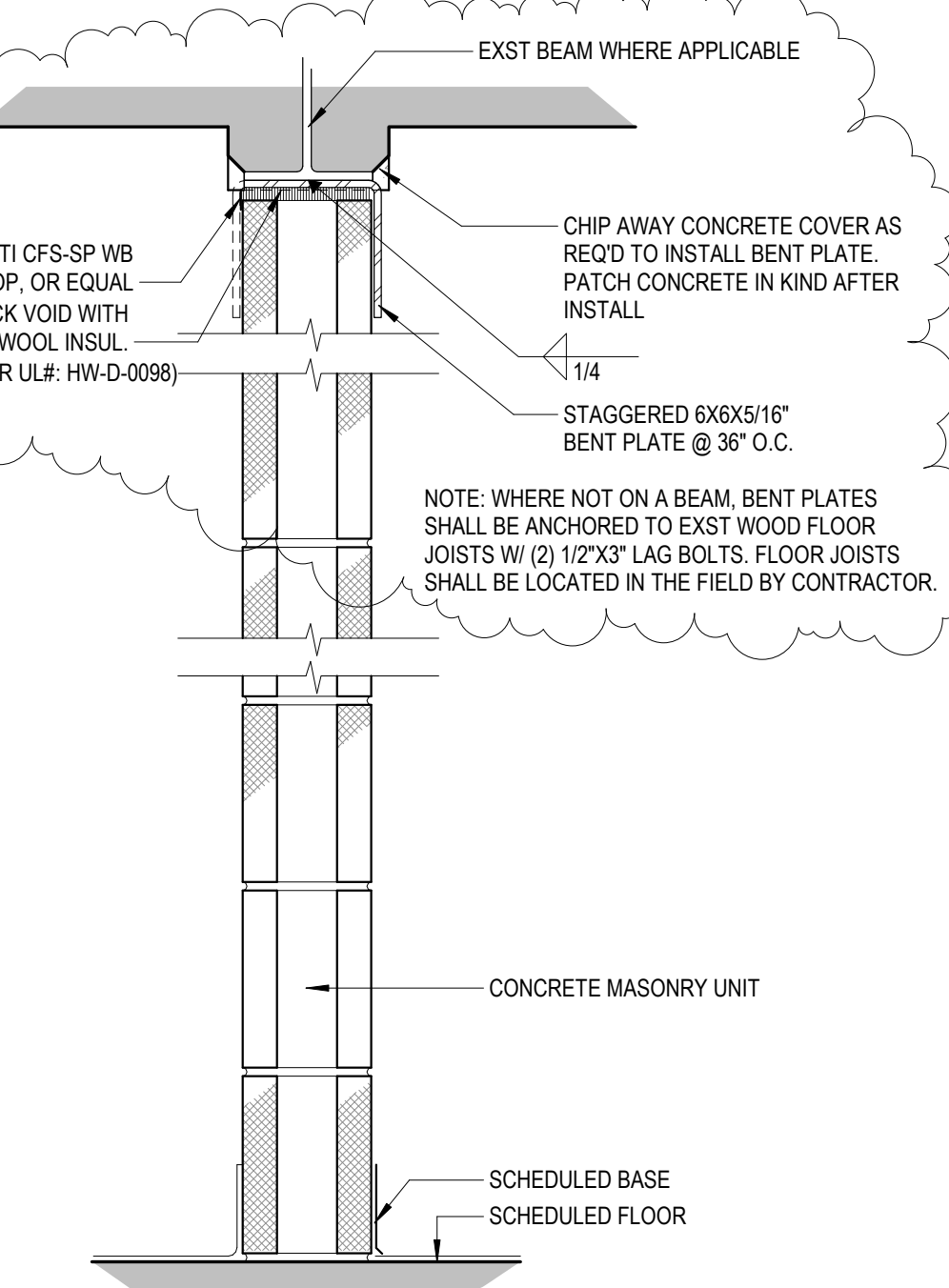
PARTITION TYPE 'B' - 3 5/8" MTL STUDS



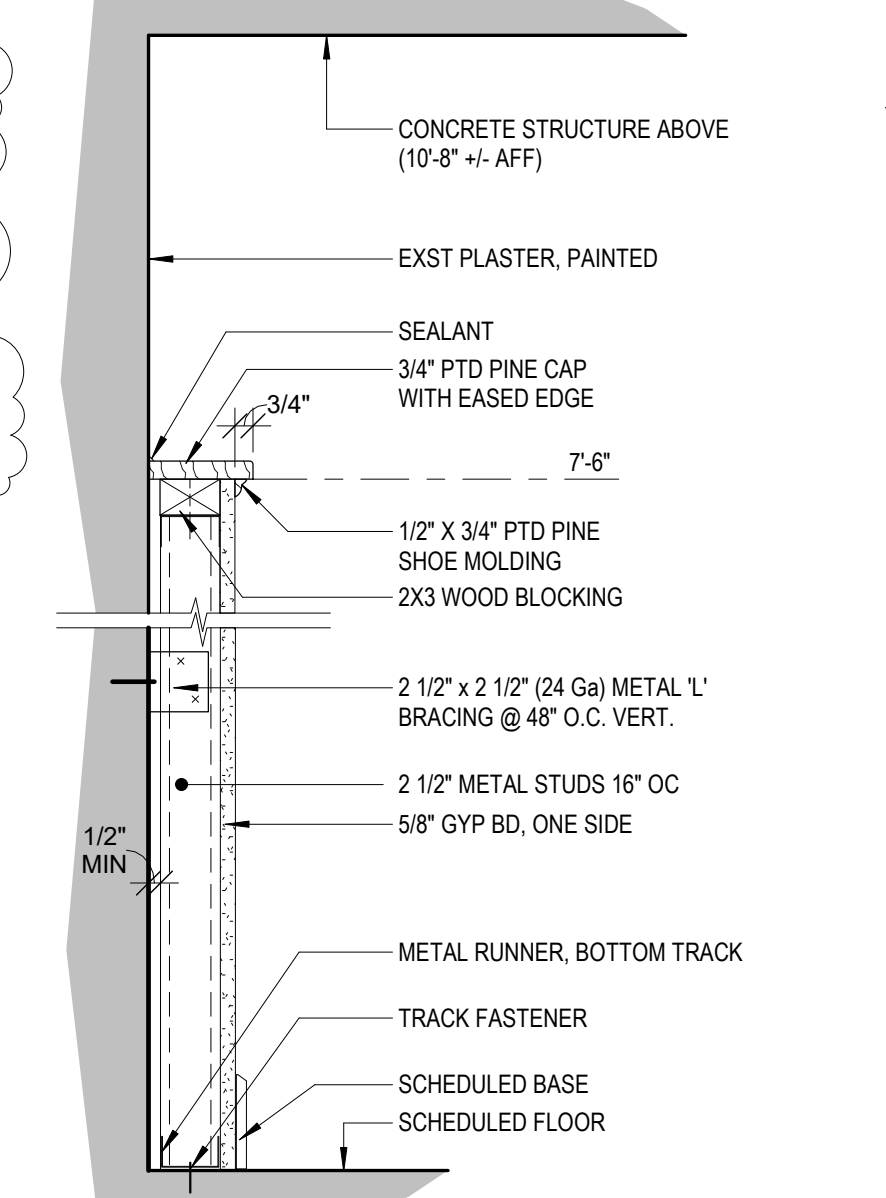
PARTITION TYPE 'C' - 2 1/2" MTL STUDS



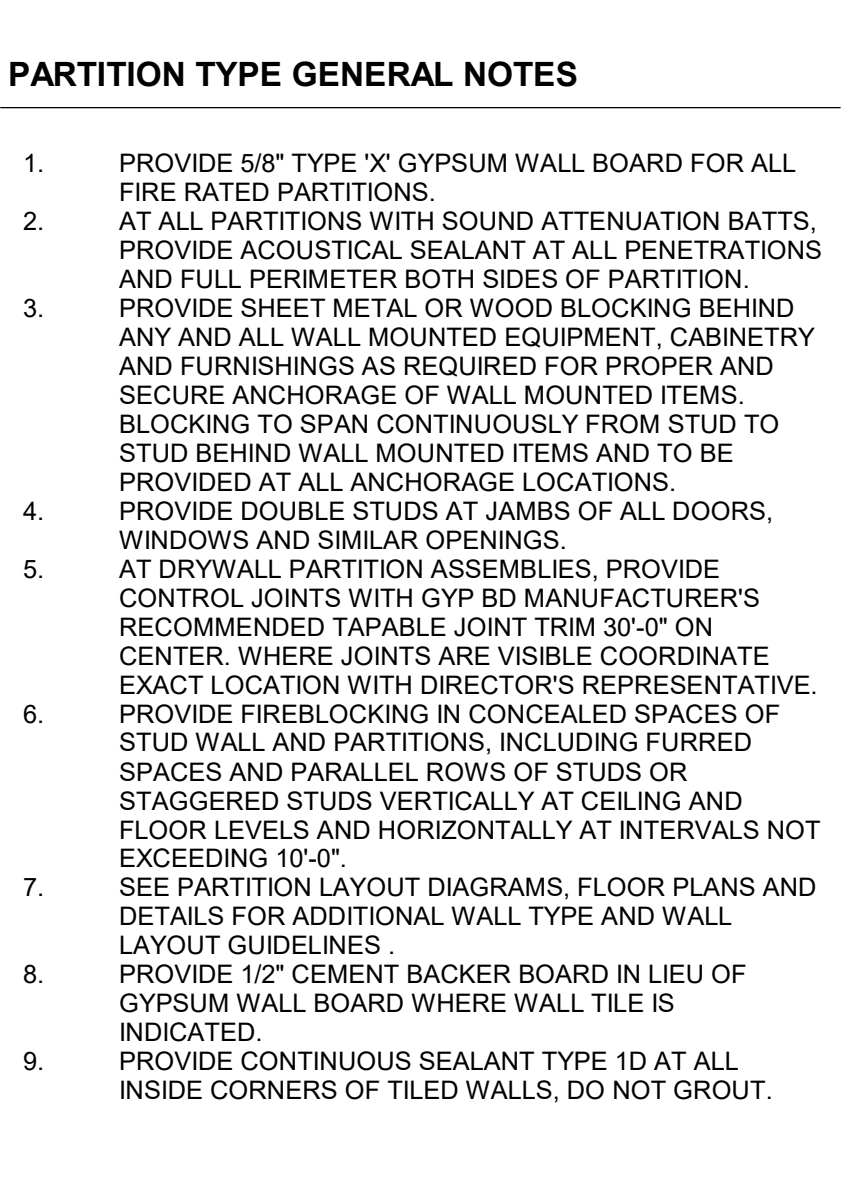
PARTITION TYPE 'D' - 3 5/8" MTL STUDS
PARTITION TYPE 'E' - 6" MTL STUDS



PARTITION TYPE 'F' - 3 5/8" MTL STUDS (1 HOUR - UL # U419)
PARTITION TYPE 'G' - 6" MTL STUDS (1 HOUR - UL # U419)
PARTITION TYPE 'G1' - 8" MTL STUDS (1 HOUR - UL # U419)



PARTITION TYPE 'H' - 3 5/8" MTL STUDS



PARTITION TYPE GENERAL NOTES

- PROVIDE 5/8" TYPE 'X' GYPSUM WALL BOARD FOR ALL FIRE RATED PARTITIONS.
- AT ALL PARTITIONS WITH SOUND ATTENUATION BATTS, PROVIDE ACOUSTICAL SEALANT AT ALL PENETRATIONS AND FULL PERIMETER BOTH SIDES OF PARTITION.
- PROVIDE SHEET METAL OR WOOD BLOCKING BEHIND ANY AND ALL WALL MOUNTED EQUIPMENT, CABINETRY AND FURNISHINGS AS REQUIRED FOR PROPER AND SECURE ANCHORAGE OF WALL MOUNTED ITEMS. BLOCKING TO SPAN CONTINUOUSLY FROM STUD TO STUD BEHIND WALLS MOUNTED ITEMS AND TO BE PROVIDED AT ALL ANCHORAGE LOCATIONS.
- PROVIDE DOUBLE STUDS AT JAMBS OF ALL DOORS, WINDOWS AND SIMILAR OPENINGS.
- AT DRYWALL PARTITION ASSEMBLIES, PROVIDE CONTROL JOINTS WITH GYP BD MANUFACTURER'S RECOMMENDED TAPABLE JOINT TRIM 30'-0" ON CENTER. WHERE JOINTS ARE VISIBLE COORDINATE EXACT LOCATION WITH DIRECTOR'S REPRESENTATIVE.
- PROVIDE FIREBLOCKING IN CONCEALED SPACES OF STUD WALL AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS VERTICALLY AT CEILING AND FLOOR LEVELS AND HORIZONTALLY AT INTERVALS NOT EXCEEDING 10'-0".
- SEE PARTITION LAYOUT DIAGRAMS, FLOOR PLANS AND DETAILS FOR ADDITIONAL WALL TYPE AND WALL LAYOUT GUIDELINES.
- PROVIDE 1/2" CEMENT BACKER BOARD IN LIEU OF GYPSUM WALL BOARD WHERE WALL TILE IS INDICATED.
- PROVIDE CONTINUOUS SEALANT TYPE 1D AT ALL INSIDE CORNERS OF TILED WALLS. DO NOT GROUT.

1 PARTITION TYPES

1 1/2" = 1'-0"

DESIGN & CONSTRUCTION

CONSULTANT:

CERTIFICATE OF AUTHORIZATION #: 018342



UNIFORM CODE STATEMENT:
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ENERGY CODE COMPLIANCE STATEMENT:
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CONTRACT:

CONSTRUCTION

TITLE:

REHABILITATE LOCKER ROOMS & LATRINES

LOCATION:

STATE ARMORY
150-74 6TH AVENUE
WHITESTONE, NY

CLIENT:

DIVISION OF MILITARY AND NAVAL AFFAIRS

MARK	DATE	DESCRIPTION
1	6/21/2023	ADDENDUM #1
0	5/12/23	ISSUED FOR BID
PROJECT NUMBER:	47352 - C	
DESIGNED BY:	KPB	
DRAWN BY:	KPB	
FIELD CHECK:	Checker	
APPROVED:	Approver	
SHEET TITLE:	GENERAL CONSTRUCTION NOTES, SYMBOLS AND ABBREVIATIONS	

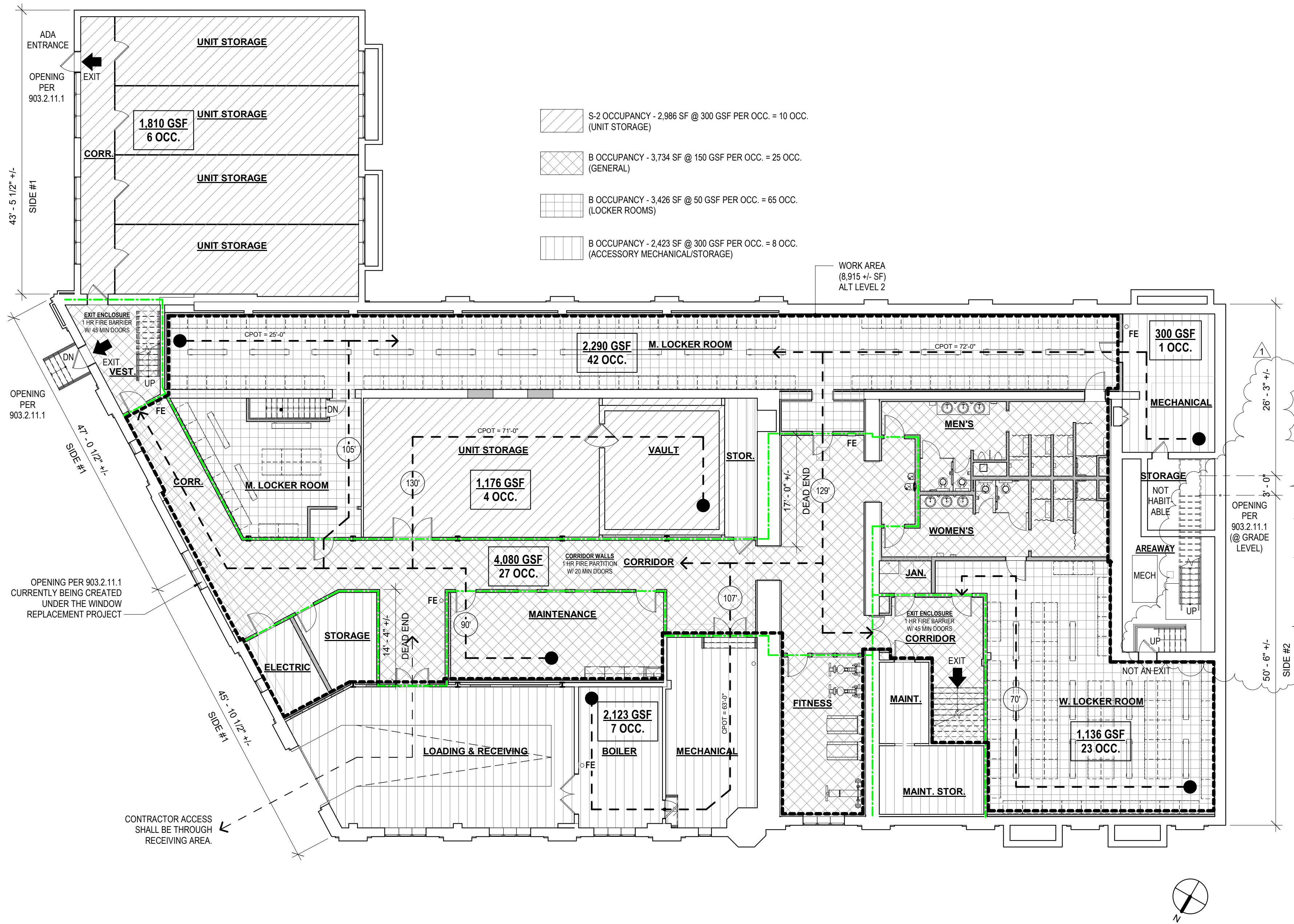
GENERAL CONSTRUCTION NOTES, SYMBOLS AND ABBREVIATIONS

DRAWING NUMBER:

A-001

SHEET: 3

OF 44



③ LOWER LEVEL CODE DIAGRAM
3/32" = 1'-0"

CONSTRUCTION SAFEGUARDS

- | | | | |
|----|---|----|---|
| 1. | SCOPE, THE SAFETY OF THE CONSTRUCTION AREA, AND ADJACENT PUBLIC AND PRIVATE PROPERTIES SAFETY, SHALL BE PROTECTED DURING CONSTRUCTION AND DEMOLITION IN ACCORDANCE WITH THE 2020 EXISTING EGRESS CODE OF NEW YORK STATE (EBCNYS) CHAPTER 15 AND THE 2021 FIRE CODE OF NEW YORK STATE (FCNYS) CHAPTER 33. COMPLIANCE WITH NFPA 241 IS REQUIRED FOR ITEMS NOT SPECIFICALLY ADDRESSED. THIS SPECIFICATION PROSCRIBES MINIMUM SAFEGUARDS FOR CONSTRUCTION TO PROVIDE REASONABLE SAFETY TO LIFE AND PROPERTY FROM FIRE DURING SUCH OPERATIONS. | 5. | FIRE SAFETY DURING CONSTRUCTION AND REMOVALS: FIRE SAFETY SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF EBCNYS CHAPTER 15 AND FCNYS CHAPTER 33. |
| 2. | CONSTRUCTION INCLUDES ANY NEW CONSTRUCTION, REMOVALS, REMODELING, ALTERATIONS, REPAIRS OR ADDITIONS TO ANY BUILDING OR STRUCTURE. | | A. FIRE EXTINGUISHERS: PROVIDE PORTABLE FIRE EXTINGUISHERS FOR PROTECTION DURING CONSTRUCTION AND REMOVALS AT EACH STAIRWAY, ON EACH FLOOR LEVEL, WHERE COMBUSTIBLE MATERIALS HAVE ACCUMULATED, AND IN EVERY STORAGE AND CONSTRUCTION SHED. EXTINGUISHERS SHALL COMPLY WITH FCNYS SECTION 203.1.1.1. ADDITIONAL PORTABLE FIRE EXTINGUISHERS SHALL BE PROVIDED WHERE SPECIAL HAZARDS EXIST, SUCH AS THE STORAGE AND USE OF FLAMMABLE AND COMBUSTIBLE LIQUIDS |
| 3. | MAINTENANCE OF SAFE CONDITIONS; REQUIRED SAFETY ELEMENTS SUCH AS EXISTING STRUCTURAL MEMBRANE, FIRE PROTECTION DEVICES, AND SANITARY SAFEGUARDS SHALL BE MAINTAINED AT ALL TIMES, EXCEPT WHERE THE BUILDING IS NOT OCCUPIED OR WHERE SUCH REQUIRED ELEMENTS ARE BEING ALTERED OR REPAIRED AND ADEQUATE SUBSTITUTE PROVISIONS ARE GOING TO BE MADE. | 6. | B. ANY BURNING, CUTTING OR WELDING SHALL REQUIRE A HOT WORK PERMIT AND APPROVAL. |
| 4. | MEANS OF EGRESS: AN APPROVED PERMANENT OR TEMPORARY MEANS OF EGRESS SHALL BE MAINTAINED. AN EGRESS COMPONENT SHALL NOT BE REMOVED UNLESS AND UNTIL THE SITE-SPECIFIC EGRESS PLAN HAS BEEN PROVIDED. CONTRACTOR TO PROVIDE A SITE-SPECIFIC EGRESS SEQUENCING WORK PLAN FOR APPROVAL BY DIRECTOR'S REPRESENTATIVE. | | MATERIAL HANDLING: EQUIPMENT AND MATERIALS SHALL BE STORED AND PLACED, AND WASTE SHALL BE REMOVED, SO AS NOT TO ENDANGER THE PERSONS OR PROPERTY OR TO IMPEDE A MEANS OF EGRESS. PLACE MATERIAL AND WASTE IN PROPERLY CONSTRUCTED CONTAINERS, SUCH AS STANDPIPES, FIRE EXTINGUISHERS, FIRE OR POLICE ALARM BOXES, CATCH BASINS, MANHOLES, RELEVANT UTILITY STRUCTURES, TRAFFIC OR OBSERVATION OF TRAFFIC SIGNALS. COMBUSTION DEBRIS SHALL NOT BE ACCUMULATED OR STORED IN CONTAINERS OR AREAS OR LOCATIONS OUT OF EACH SHIFT. RUBBISH CONTAINERS WITH A CAPACITY EXCEEDING 5.33 CUBIC FEET (40 GALLONS OR 0.15 CUBIC METERS) SHALL HAVE TIGHT FITTING OR SELF |

CONSTRUCTION PHASING NOTES

1. CONTRACTOR TO PROVIDE A PHASING PLAN OF ALL WORK FOR REVIEW AND APPROVAL BY THE DIRECTOR'S REPRESENTATIVE.

General Code Information

2020 Building Code of New York State	BCNYS
2020 Existing Building Code of New York State	EBCNYS
2020 Fire Code of New York State	FCNYS
2020 Plumbing Code of New York State	PCNYS
2020 Mechanical Code of New York State	MCNYS
2020 Fuel Gas Code of New York State	FGCNYS
2020 Property Maintenance Code of New York State	PMCNYS
2020 Energy Conservation Code of New York State	ECNYS
2016 ASRAE 90.1	
2017 National Electric Code	NEC

2020 Existing Building Code of New York State

Ch. 3	Provisions for all Compliance Methods Work area compliance method	Reference EBCNYS
Ch. 6	Classification of Work Alteration Level 2 - Reconfiguring space in the Lower Level. Area less than 50% the building area.	Reference EBCNYS
Ch. 8	Alteration Level 2 Per 801.3 - All new construction elements shall comply with the requirements of the BCNYS Per 802.2.3 - Stairways that are part of the means of egress serving the work area shall be enclosed. Proposed 1 Hr rating Per 803.2.3 - Windowless stories, as determined by BCNYS, shall be sprinklered. Refer to 'stories without windows' below.	Reference EBCNYS EBCNYS EBCNYS

2020 Building Code of New York State

Ch. 3	Use and Occupancy Classification Business Group B Storage Group S-2				Reference BCNYS 30
Ch. 5	General Building Heights and Areas Required separation of Boiler Room (Incidental Use) Types of Construction	Required 1 Hr	Provided 1 Hr		Reference Table 508 Table 601
Ch. 6	Type IIB (Building Elements)	Required 0 Hr	Provided 0 Hr		Reference Table 601
Ch. 7	Fire and Smoke Protection Fire Barrier (at Lower Level stair enclosures) Fire Partition (at corridors)	Required 1 Hr 1 Hr	Provided 1 Hr 1 Hr		Reference BCNYS 70 BCNYS 70
Ch. 8	Interior Finishes Interior Wall and Ceiling Finish Requirements Interior exit stairs, ramps and passageways (B... Corridors (B Occ.) Rooms and enclosed spaces (B Occ.) Interior Floor Finish	Required B C C Class II	Provided B Minimum C Minimum C Minimum Class II Minimum		Reference BCNYS 71 BCNYS 71 BCNYS 71 BCNYS 80
Ch. 9	Fire Protection Systems Automatic Sprinkler System - Although not a basement per code definition, the Lower Level is considered a 'stories without openings' per code - Considering the building geometry per 903.2.11.1.2, we would need code acceptable 'openings' to avoid sprinklers - Code path is to provide 'openings' described in 903.2.11.1 on two sides of the lower level, thus a sprinkler system is not required Portable Fire Extinguishers Travel Distance Minimum Rated Single Maximum Area per A Maximum per Extinguisher Fire Alarm System	Required Not Required Required 75'-0" 2-A 3,000sf 11,250 sf Required	Provided Not Provided Light Hazard 75'-0" Maximum 2-A Minimum Provided Provided		Reference BCNYS 90 BCNYS 90 903.2.11.1.2 BCNYS 90 BCNYS 71 BCNYS 71 BCNYS 80

Ch. 10	Means of Egress	Allowance	Occupants	Provided	Reference
	Occupant Load Calculations				
	Lower Level				
	Storage Group S-2 (Unit Storage) - 2,986 sf	300 gsf per Occupant	10		BCNYS Table 1010.1.1
	Business Group B (General) - 4,080 sf	150 gsf per Occupant	27		BCNYS Table 1010.1.1
	Business Group B (Locker Rooms) - 3,426 sf	50 gsf per Occupant	65		BCNYS Table 1010.1.1
	Business Group B (Incidental Mechanical) - 1,848 sf	300 gsf per Occupant	6		
	Total sf 12,340 sf		108Total Occ		
	Means of Egress	Allowance	Required	Provided	
	Minimum Door Size - Clear Opening		32"	32" +	BCNYS 1010.1.1
	Minimum Corridor Width		44"	84"	BCNYS Table 1010.1.1
	Maximum Exit Access Travel Distance (B Occ)		200'-0"	130'	BCNYS Table 1010.1.1
	Maximum Common Path of Travel (B Occ)		75'-0"	72'-0" Maximum	BCNYS Table 1010.1.1
	Maximum Dead End Corridor		20'-0"	17'-0"	BCNYS 1020.4

2020 Building Code of New York State - Plumbing Code Information

	Applicable Codes				
	2020 Building Code of New York State				BCNYS
	2020 Existing Building Code of New York State				EBCNYS
	2020 Plumbing Code of New York State				PCNYS
Ch. 3	Use and Occupancy Classification				Reference
	Business Group B				BCNYS 304
	Storage Group S-2				BCNYS 311
Ch. 10	Occupant Load				
	Occupant Load	Male	Female	Total	
	Business Group B (assumes 2/3, 1/3 mix M to F)	60 Occ.	30 Occ.	90 Total Occ.	
	Storage Group S-2 (assumes 2/3, 1/3 mix M to F)	12 Occ.	6 Occ.	18 Occ.	
				108 Total Occupants	
Ch. 29	Minimum Plumbing Facilities	Allowance	Required	Provided	Reference
	<u>Business Group B (incl S-2 Occupants)</u>				
	Water Closets - Male	1 per 25 for first 50 then 1 per 50	(2.44) 3	4	BCNYS Table 290
	Water Closets - Female	1 per 25 for first 50 then 1 per 50	(1.44) 2	2	BCNYS Table 290
	Lavatories - Male	1 per 40 for first 80 then 1 per 80	(1.8) 2	3	BCNYS Table 290
	Lavatories - Female	1 per 40 for first 80 then 1 per 80	(0.9) 1	3	BCNYS Table 290
	Bathtubs + Showers	Not Required	0	7	BCNYS Table 290
	Drinking Fountains	1 per 100	(1.08) 1	2	BCNYS Table 290
	Service Sink	Service Sink	1	1	BCNYS Table 290

Note:
1. Per DMNA - Assume 2/3 Male and 1/3 Female

STRUCTURAL DESIGN CRITERIA

SEISMIC DESIGN
SEISMIC LOADS ARE DETERMINED FROM THE BUILDING CODE AND ASCE 7, BASED ON THE FOLLOWING PARAMETERS:

RISK CATEGORY:	II
SEISMIC IMPORTANCE FACTOR:	$I = 1.0$
SPECTRAL RESPONSE ACCELERATION:	$S_s = 0.255g, S_1 = 0.006g$
SITE CLASS:	D
DESIGN SPECTRAL RESPONSE ACCELERATION:	$S = 0.299g, S_d1 = 0.095g$
SEISMIC DESIGN CATEGORY:	D
DESIGN BASE SHEAR:	$V = 0.093 W$, WHERE $W = 122 \text{ KIPS}$
SEISMIC RESPONSE COEFFICIENTS:	$C_w = 0.093$
RESPONSE MODIFICATION FACTOR:	$R = 4$

<u>WIND LOAD DESIGN</u>	
BASIC WIND SPEED (3 SECOND GUST), Vult	115 MPH
SERVICE WIND SPEED (3 SECOND GUST), Vasd	90 MPH
WIND EXPOSURE CATEGORY	B
INTERNAL PRESSURE COEFFICIENT, GCpi	+/- 0.18

<u>LIVE LOADS</u>	
STAIRS	100 PSF
LOCKER ROOM FLOOR	60 PSF

DEAD LOADS
LOCKER ROOM FLOOR (MTL JST, PLYWD, RBR TILE) 20 PSF

DESIGN & CONSTRUCTION

CONSULTANT:
CERTIFICATE OF AUTHORIZATION #: 018342

CHA
kpbArchitecture

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REGISTRATION EXPIRES
03/31/2024

CONTRACT: CONSTRUCTION

TITLE: REHABILITATE LOCKER ROOMS & LATRINES

LOCATION: STATE ARMORY
150-74 6TH AVENUE
WHITESTONE, NY

CLIENT: DIVISION OF MILITARY AND NAVAL AFFAIRS

1	6/21/2023	ADDENDUM
0	5/12/23	ISSUED FOR
MARK	DATE	DESCRIPTION
PROJECT NUMBER:	47352 - C	
DESIGNED BY:	KPB	
DRAWN BY:	KPB	
FIELD CHECK:	Checker	
APPROVED:	Approver	
SHEET TITLE:		

CODE REVIEW PLAN

DRAWING NUMBER

A-002

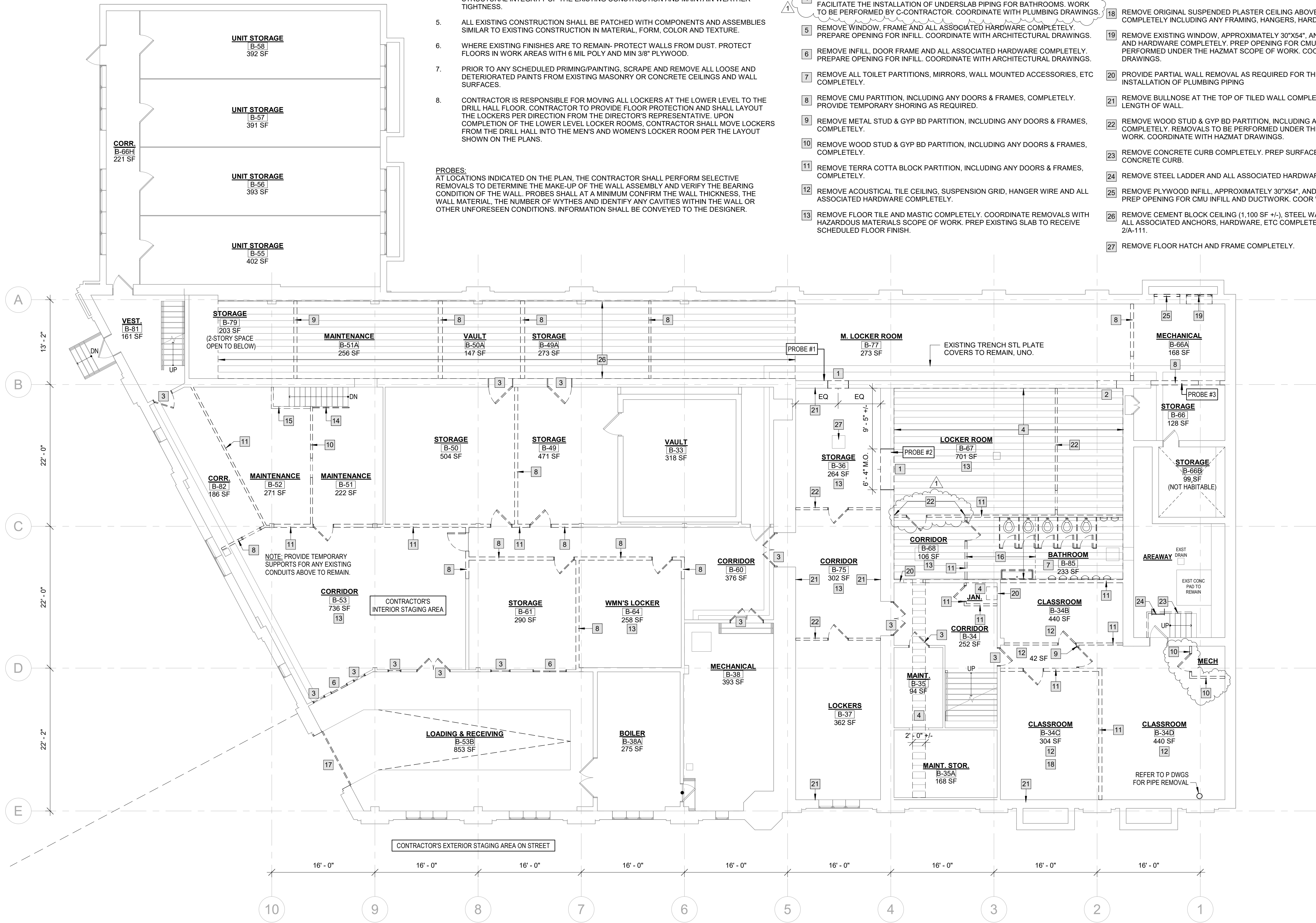
REMOVAL PLAN GENERAL NOTES:

- THIS REMOVAL DRAWING INDICATES MAJOR ARCHITECTURAL ITEMS FOR REMOVAL, PATCH AND REPAIR. VERIFY EXISTING CONDITIONS IN THE FIELD AND NOTIFY ARCHITECT IN CASE OF ANY DISCREPANCIES.
- REFER TO H, P, AND E- DRAWINGS FOR WORK REQUIRING SELECTIVE REMOVALS OF EXISTING CONSTRUCTION. CUT AND PATCH EXISTING CONSTRUCTION IN ORDER TO ACHIEVE HIS/HER WORK.
- ALL REMOVAL ITEMS ARE TO BE SAFELY AND LEGALLY DISPOSED.
- ALL REMOVALS, CUTTING AND PATCHING SHALL BE DONE SO AS TO PRESERVE THE STRUCTURAL INTEGRITY OF THE EXISTING CONSTRUCTION AND MAINTAIN WEATHER-TIGHTNESS.
- ALL EXISTING CONSTRUCTION SHALL BE PATCHED WITH COMPONENTS AND ASSEMBLIES SIMILAR TO EXISTING CONSTRUCTION IN MATERIAL, FORM, COLOR AND TEXTURE.
- WHERE EXISTING FINISHES ARE TO REMAIN- PROTECT WALLS FROM DUST. PROTECT FLOORS IN WORK AREAS WITH 6 MIL POLY AND MIN 3/8" PLYWOOD.
- PRIOR TO ANY SCHEDULED PRIMING/PAINTING, SCRAPE AND REMOVE ALL LOOSE AND DETERIORATED PAINTS FROM EXISTING MASONRY OR CONCRETE CEILINGS AND WALL SURFACES.
- CONTRACTOR IS RESPONSIBLE FOR MOVING ALL LOCKERS AT THE LOWER LEVEL TO THE DRILL HALL FLOOR. CONTRACTOR TO PROVIDE FLOOR PROTECTION AND SHALL LAYOUT THE LOCKERS PER DIRECTION FROM THE DIRECTOR'S REPRESENTATIVE. UPON COMPLETION OF THE LOWER LEVEL LOCKER ROOMS, CONTRACTOR SHALL MOVE LOCKERS FROM THE DRILL HALL INTO THE MEN'S AND WOMEN'S LOCKER ROOM PER THE LAYOUT SHOWN ON THE PLANS.

PROBES:
AT LOCATIONS INDICATED ON THE PLAN, THE CONTRACTOR SHALL PERFORM SELECTIVE REMOVALS TO DETERMINE THE MAKE-UP OF THE WALL ASSEMBLY AND VERIFY THE BEARING CONDITION OF THE WALL. PROBES SHALL AT A MINIMUM CONFIRM THE WALL THICKNESS, THE WALL MATERIAL, THE NUMBER OF WYTHES AND IDENTIFY ANY CAVITIES WITHIN THE WALL OR OTHER UNFORESEEN CONDITIONS. INFORMATION SHALL BE CONVEYED TO THE DESIGNER.

REMOVAL PLAN KEYNOTES:

- PROVIDE OPENING WITHIN EXISTING MASONRY WALL TO ACCOMMODATE SCHEDULED DOOR AND/OR FRAME. PROVIDE TEMP SHORING AS REQUIRED. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- REMOVE FRAME AND ALL ASSOCIATED HARDWARE. PREPARE OPENING FOR SCHEDULED DOOR AND FRAME. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- REMOVE DOOR AND/OR WINDOW, FRAME AND ALL ASSOCIATED HARDWARE. PREPARE OPENING FOR INFILL OR SCHEDULED DOOR AND FRAME. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- HATCH INDICATES TO SAW CUT AND REMOVE CONCRETE SLAB COMPLETELY TO FACILITATE THE INSTALLATION OF UNDERSLAB PIPING FOR BATHROOMS. WORK TO BE PERFORMED BY C-CONTRACTOR. COORDINATE WITH PLUMBING DRAWINGS.
- REMOVE WINDOW, FRAME AND ALL ASSOCIATED HARDWARE COMPLETELY. PREPARE OPENING FOR INFILL. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- REMOVE INFILL, DOOR FRAME AND ALL ASSOCIATED HARDWARE COMPLETELY. PREPARE OPENING FOR INFILL. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- REMOVE ALL TOILET PARTITIONS, MIRRORS, WALL MOUNTED ACCESSORIES, ETC COMPLETELY.
- REMOVE CMU PARTITION, INCLUDING ANY DOORS & FRAMES, COMPLETELY. PROVIDE TEMPORARY SHORING AS REQUIRED.
- REMOVE METAL STUD & GYP BD PARTITION, INCLUDING ANY DOORS & FRAMES, COMPLETELY.
- REMOVE WOOD STUD & GYP BD PARTITION, INCLUDING ANY DOORS & FRAMES, COMPLETELY.
- REMOVE TERRA COTTA BLOCK PARTITION, INCLUDING ANY DOORS & FRAMES, COMPLETELY.
- REMOVE ACOUSTICAL TILE CEILING, SUSPENSION GRID, HANGER WIRE AND ALL ASSOCIATED MATERIALS COMPLETELY.
- REMOVE FLOOR TILE AND MASTIC COMPLETELY. COORDINATE REMOVALS WITH HAZARDOUS MATERIALS SCOPE OF WORK. PREP EXISTING SLAB TO RECEIVE SCHEDULED FLOOR FINISH.
- REMOVE PIPE RAILING AND ALL ASSOCIATED HARDWARE COMPLETELY.
- REMOVE WOOD FRAMED STAIR ENCLOSURE COMPLETELY.
- REMOVE FRAMED PLASTER DROP CEILING ABOVE COMPLETELY. UPPER LEVEL BATHROOM SHUT OFF VALVES ARE LOCATED HERE AND SHOULD BE PROTECTED AND MAINTAINED. COORDINATE WORK WITH MECHANICAL DRAWINGS.
- REMOVE OVERHEAD DOOR, TRACKS AND ALL ASSOCIATED HARDWARE COMPLETELY. CONTRACTOR TO PROVIDE TEMPORARY 2X6 WALL W/ 1/2" PLYWOOD TO COVER OPENING TO ENSURE A SECURE FACILITY. PROVIDE WORK PLAN TO DIRECTOR'S REPRESENTATIVE FOR REVIEW AND APPROVAL.
- REMOVE ORIGINAL SUSPENDED PLASTER CEILING ABOVE ACT CEILING COMPLETELY INCLUDING ANY FRAMING, HANGERS, HARDWARE, ETC.
- REMOVE EXISTING WINDOW, APPROXIMATELY 30"x54", AND ALL ASSOCIATED TRIM AND HARDWARE COMPLETELY. PREP OPENING FOR CMU INFILL. REMOVALS TO BE PERFORMED UNDER THE HAZMAT SCOPE OF WORK. COORDINATE WITH HAZMAT DRAWINGS.
- PROVIDE PARTIAL WALL REMOVAL AS REQUIRED FOR THE REMOVAL AND/OR INSTALLATION OF PLUMBING PIPING.
- REMOVE BULLNOSE AT THE TOP OF TILED WALL COMPLETELY FOR THE ENTIRE LENGTH OF WALL.
- REMOVE WOOD STUD & GYP BD PARTITION, INCLUDING ANY DOORS & FRAMES, COMPLETELY. COORDINATE WITH HAZMAT DRAWINGS.
- REMOVE CONCRETE CURB COMPLETELY. PREP SURFACE FOR NEW POURED CONCRETE CURB.
- REMOVE STEEL LADDER AND ALL ASSOCIATED HARDWARE COMPLETELY.
- REMOVE PLYWOOD INFILL, APPROXIMATELY 30"x54", AND ALL ASSOCIATED TRIM. PREP OPENING FOR CMU INFILL AND DUCTWORK. COOR WITH MECHANICAL DWGS.
- REMOVE CEMENT BLOCK CEILING (1,100 SF +/-). STEEL WALL ANGLE (180 LF +/-) AND ALL ASSOCIATED ANCHORS, HARDWARE, ETC COMPLETELY. REFER TO PHOTO 2/A-111.
- REMOVE FLOOR HATCH AND FRAME COMPLETELY.



1 LOWER LEVEL PLAN - REMOVALS
1/8" = 1'-0"

DESIGN & CONSTRUCTION

CONSULTANT:

CERTIFICATE OF AUTHORIZATION #: 018342



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REGISTRATION EXPIRES:
03/31/2024

CONTRACT:

CONSTRUCTION

TITLE:

REHABILITATE LOCKER ROOMS & LATRINES

LOCATION:

STATE ARMORY
150-74 6TH AVENUE
WHITESTONE, NY

CLIENT:

DIVISION OF MILITARY AND NAVAL
AFFAIRS

1	6/21/2023	ADDENDUM #1
0	5/12/23	ISSUED FOR BID
MARK	DATE	DESCRIPTION
PROJECT NUMBER:	47352 - C	
DESIGNED BY:	KPB	
DRAWN BY:	KPB	
FIELD CHECK:	Checker	
APPROVED:	Approver	
SHEET TITLE:		

LOWER LEVEL REMOVALS PLAN

DRAWING NUMBER:

AD-101

SHEET: 5

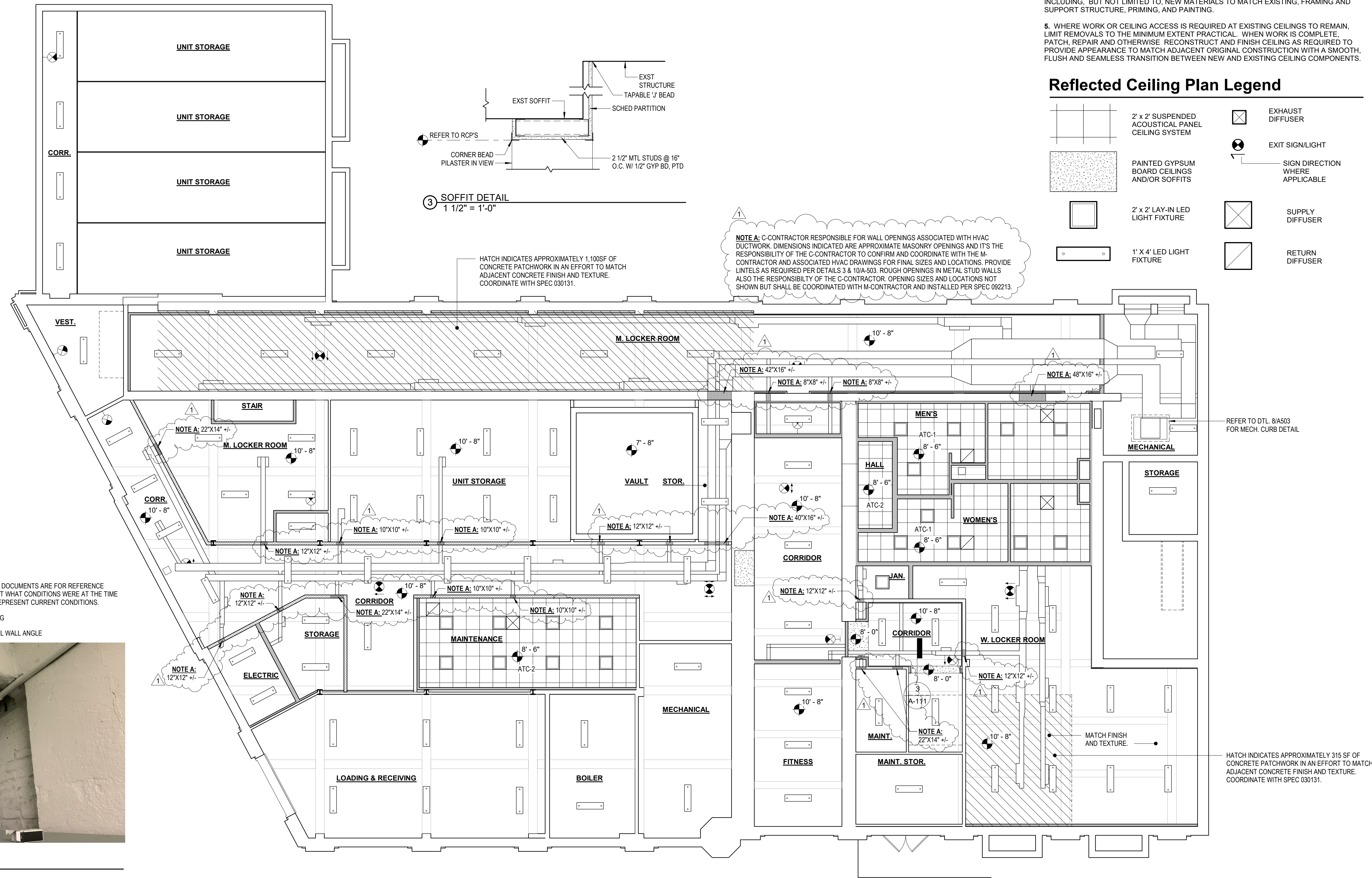
OF 44

NOTE:
PHOTOGRAPHS PROVIDED IN THE CONTRACT DOCUMENTS ARE FOR REFERENCE
PURPOSES ONLY. THESE PHOTOS REPRESENT WHAT CONDITIONS WERE AT THE TIME
THEY WERE TAKEN AND MAY ACCURATELY REPRESENT CURRENT CONDITIONS.



2 CEMENT BLOCK CEILING
12" = 1'-0"

1 LOWER LEVEL RCP
1/8" = 1'-0"



Reflected Ceiling Plan General Notes

- DIMENSIONS SHOWN ON THE REFLECTED CEILING PLANS ARE FROM FINISH FACE TO FINISH FACE UNLESS OTHERWISE NOTED
- LAY OUT CEILING GRIDS SYMMETRICALLY ABOUT THE ROOM.
- SEE MECHANICAL, ELECTRICAL AND PLUMBING DOCUMENTS FOR ADDITIONAL INFORMATION, FIXTURE, EQUIPMENT TYPES, REQUIREMENTS AND SPECIFICATIONS. IF ANY DISCREPANCIES OR CONFLICTS OCCUR BETWEEN ARCHITECTURAL REFLECTED CEILING PLANS AND THE MECHANICAL, ELECTRICAL AND PLUMBING CONTRACT DOCUMENTS, INFORM DIRECTOR'S REPRESENTATIVE IN WRITING PRIOR TO PROCEEDING WITH CONSTRUCTION.
- PATCH, REPAIR AND OTHERWISE RECONSTRUCT EXISTING CEILINGS DISTURBED BY CONSTRUCTION AS REQUIRED TO PROVIDE A COMPLETE AND FINISHED INSTALLATION, INCLUDING, BUT NOT LIMITED TO, NEW MATERIALS TO MATCH EXISTING, FRAMING AND SUPPORT STRUCTURE, PRIMING, AND PAINTING.
- WHERE WORK OR CEILING ACCESS IS REQUIRED AT EXISTING CEILINGS TO REMAIN, LIMIT REMOVALS TO THE MINIMUM EXTENT PRACTICAL. WHEN WORK IS COMPLETE, PATCH, REPAIR AND OTHERWISE RECONSTRUCT AND FINISH CEILING AS REQUIRED TO PROVIDE APPEARANCE TO MATCH ADJACENT ORIGINAL CONSTRUCTION WITH A SMOOTH, FLUSH AND SEAMLESS TRANSITION BETWEEN NEW AND EXISTING CEILING COMPONENTS.

Reflected Ceiling Plan Legend

	2' x 2' SUSPENDED ACOUSTICAL PANEL CEILING SYSTEM		EXHAUST DIFFUSER
	PAINTED GYPSUM BOARD CEILINGS AND/OR SOFFITS		EXIT SIGN/LIGHT
	2' x 2' LAY-IN LED LIGHT FIXTURE		SIGN DIRECTION WHERE APPLICABLE
	1' x 4' LED LIGHT FIXTURE		SUPPLY DIFFUSER
			RETURN DIFFUSER

DESIGN & CONSTRUCTION

CONSULTANT:

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03/31/2024

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SHEET TITLE:	

LOWER LEVEL CEILING PLAN

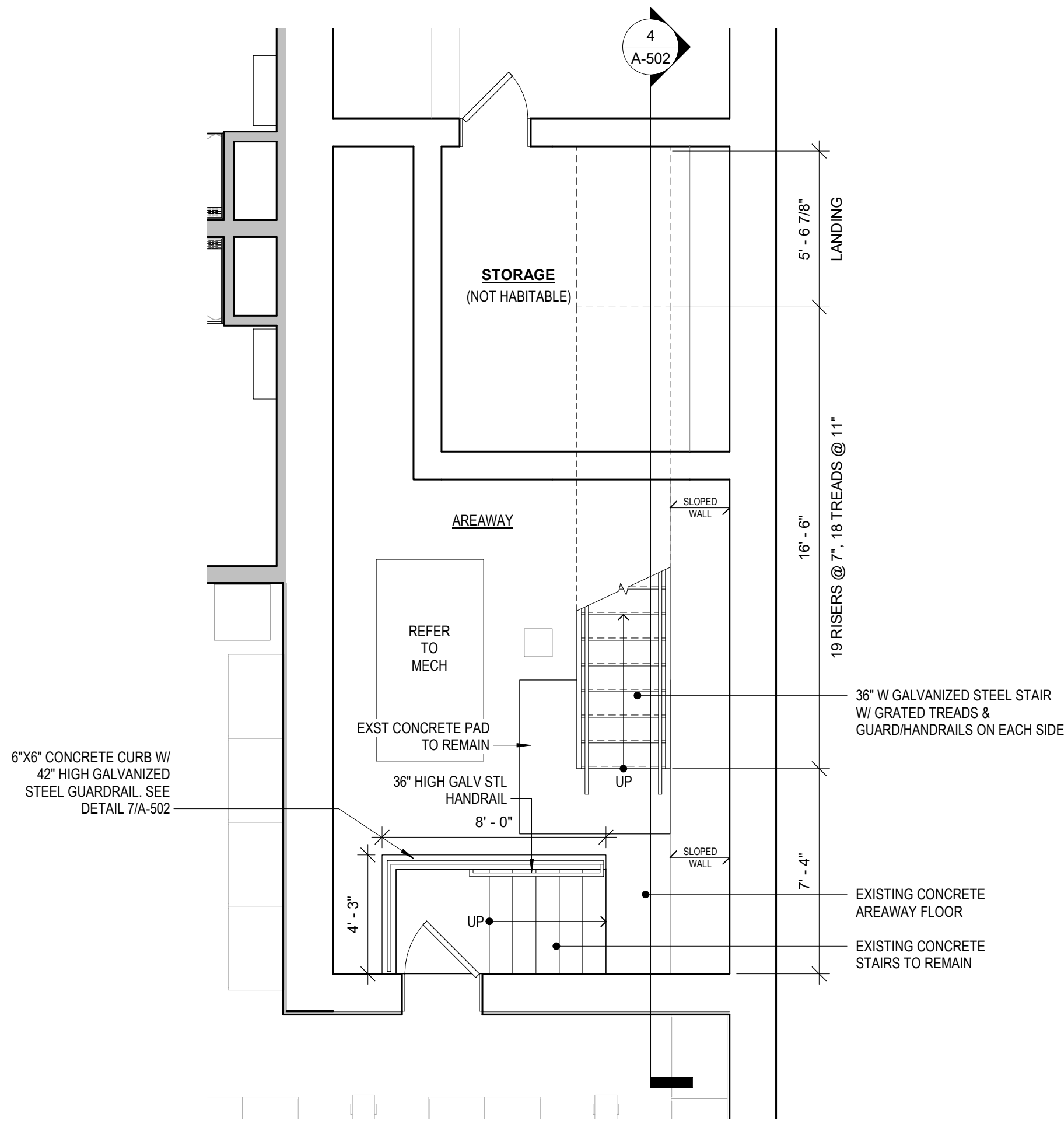
DRAWING NUMBER:

A-111

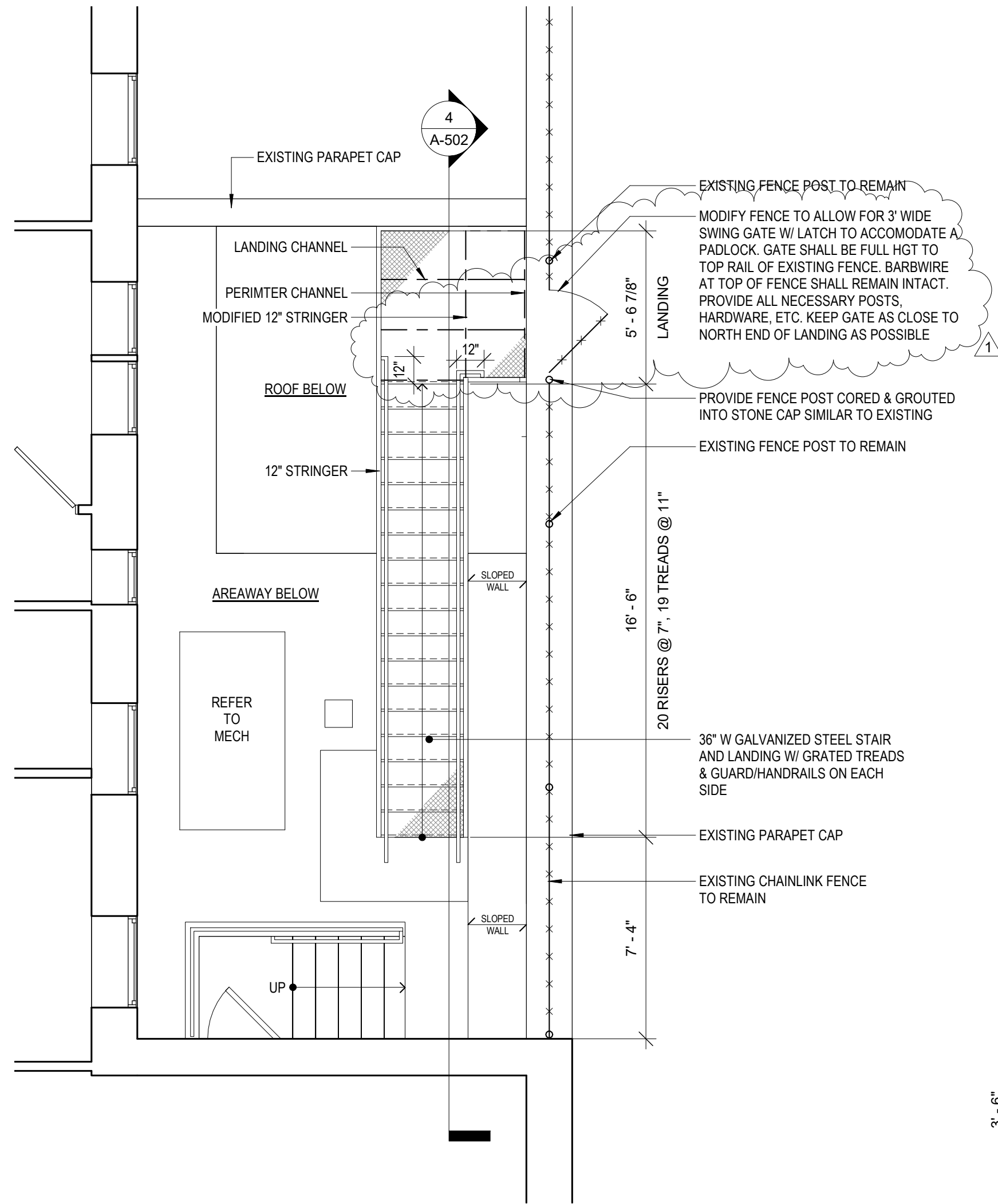
SHEET: 7

OF 44

BIM 360://47352 Whitestone Armory - Rehab Locker Rooms & Latrines/47352_WHITESTONE_ARCH_R20_kbuff@kpbarchitecture.com.rvt
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38x24 PLOT SHEET



1 ENLARGED LOWER LEVEL STAIR PLAN
1/4" = 1'-0"

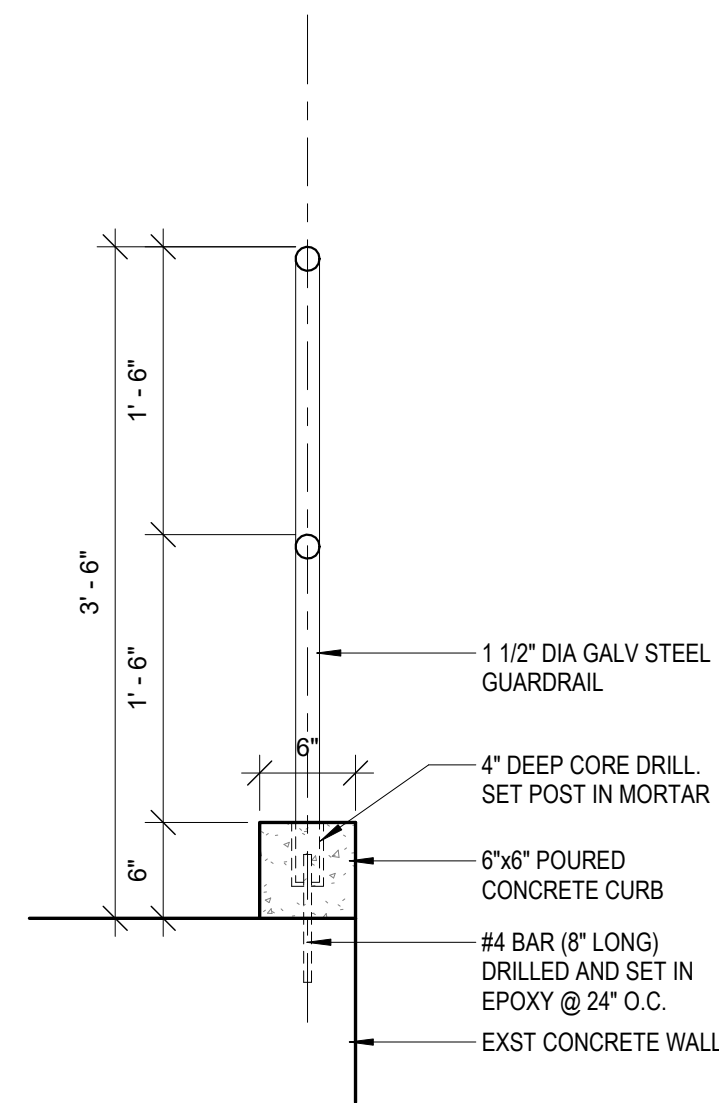


2 ENLARGED FIRST FLOOR STAIR PLAN
1/4" = 1'-0"

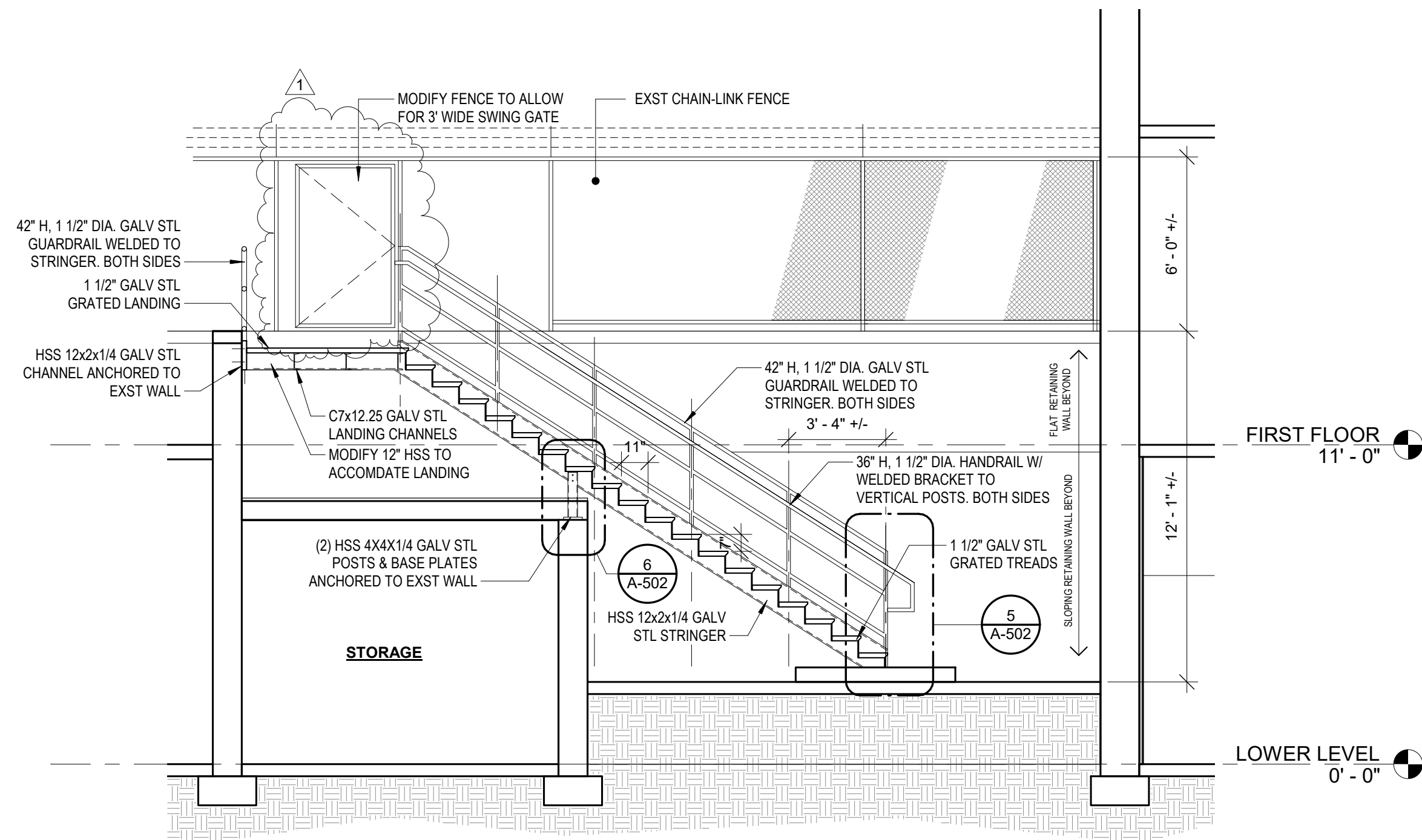
NOTE:
PHOTOGRAPHS PROVIDED IN THE CONTRACT DOCUMENTS ARE FOR REFERENCE
PURPOSES ONLY. THESE PHOTOS REPRESENT WHAT CONDITIONS WERE AT THE TIME
THEY WERE TAKEN AND MAY ACCURATELY REPRESENT CURRENT CONDITIONS.



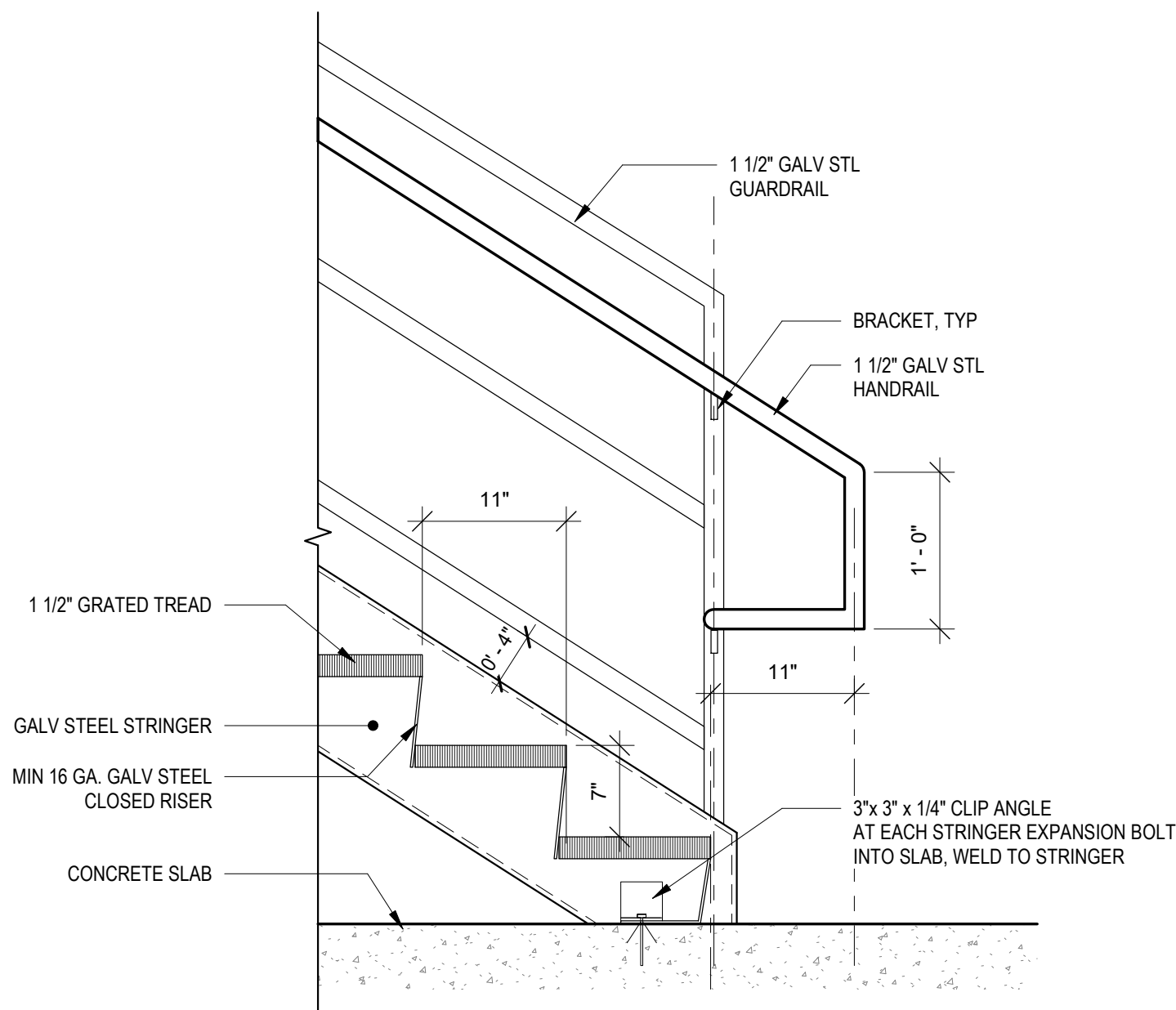
3 EXST COND PHOTO 1
12" = 1'-0"



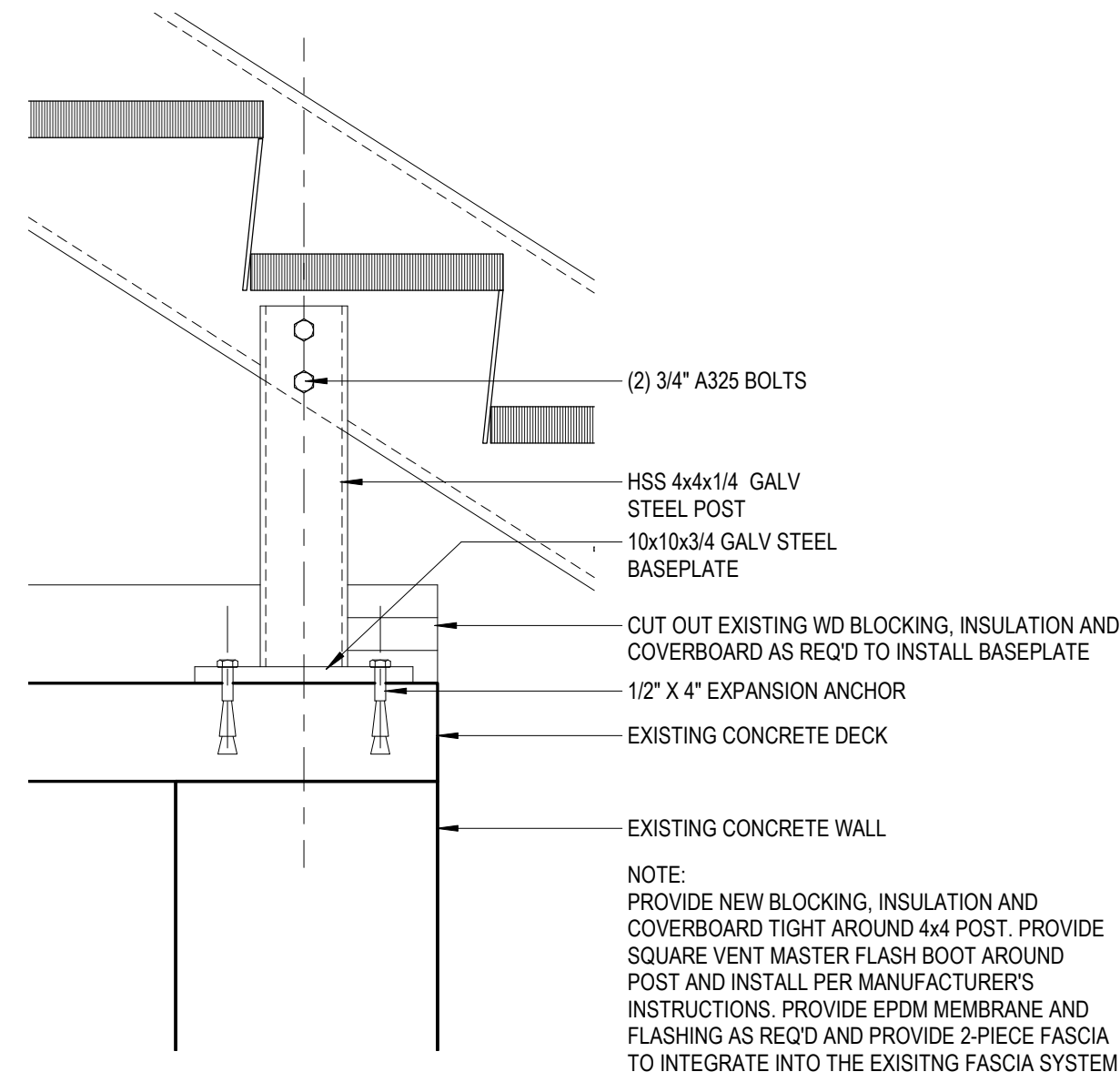
7 GUARDRAIL DETAIL
1" = 1'-0"



4 SECTION @ EXTERIOR STAIR
1/4" = 1'-0"

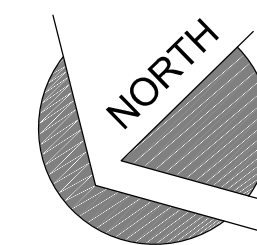
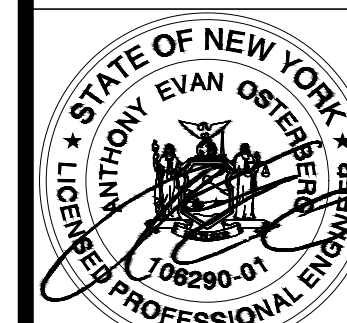


5 STAIR DETAIL
1" = 1'-0"



6 STAIR POST DETAIL
1 1/2" = 1'-0"

MARK	DATE	DESCRIPTION
1	6/21/2023	ADDENDUM #1
0	5/12/23	ISSUED FOR BID
PROJECT NUMBER: 47352 - C		
DESIGNED BY: KPB		
DRAWN BY: KPB		
FIELD CHECK: Checker		
APPROVED: Approver		
SHEET TITLE:		



1 6/21/23 ADDENDUM #1

0 5/12/23 ISSUED FOR BID

MARK DATE DESCRIPTION

PROJECT NUMBER: 47352 - H

DESIGNED BY: WW

DRAWN BY: WW

FIELD CHECK: AO

APPROVED: AO

SHEET TITLE:

HVAC DUCTWORK
REMOVALS LOWER
LEVEL

DRAWING NUMBER:

MD-101

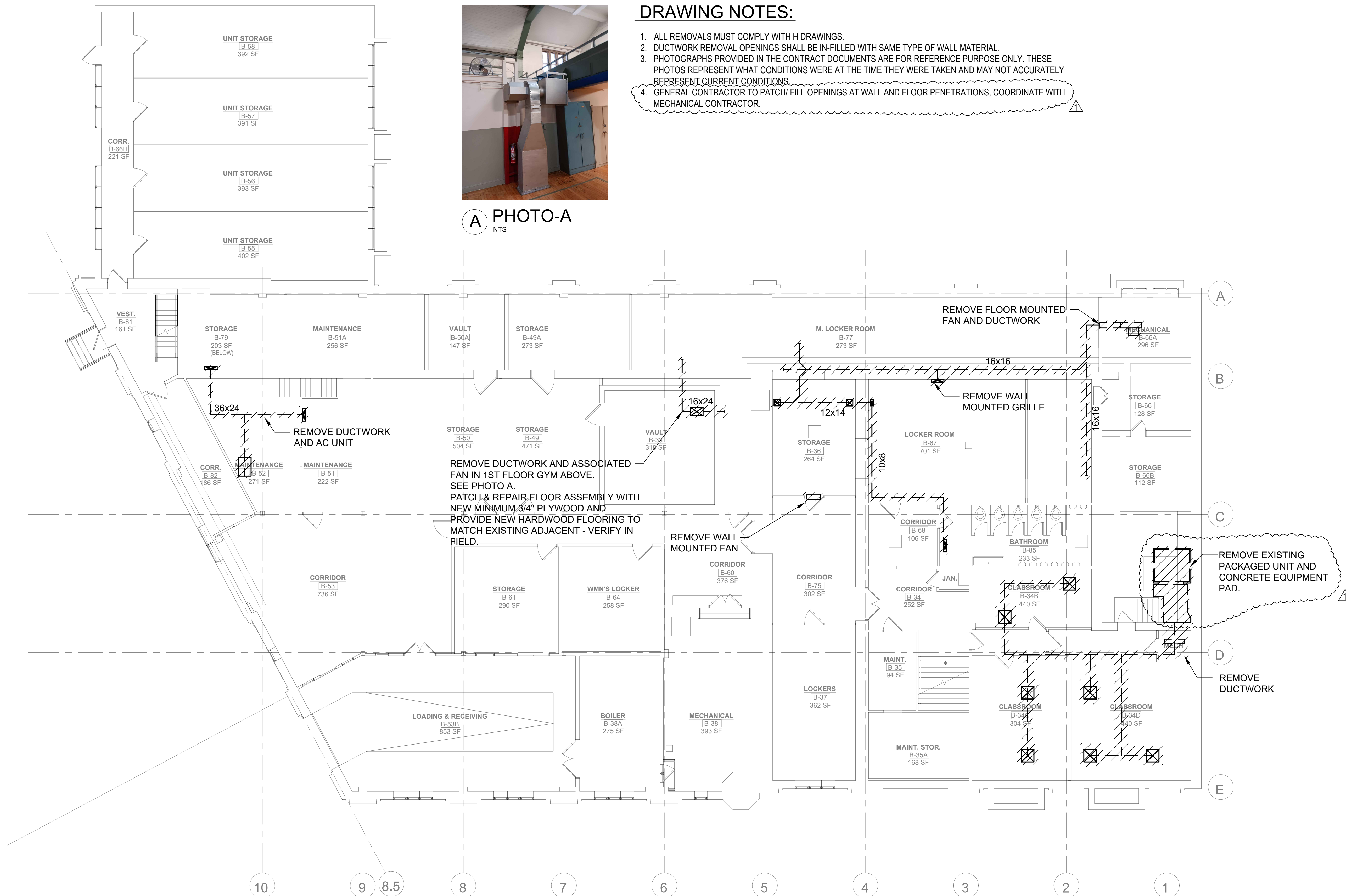
SHEET: 23 OF 44

DRAWING NOTES:

1. ALL REMOVALS MUST COMPLY WITH H DRAWINGS.
2. DUCTWORK REMOVAL OPENINGS SHALL BE IN-FILLED WITH SAME TYPE OF WALL MATERIAL.
3. PHOTOGRAPHS PROVIDED IN THE CONTRACT DOCUMENTS ARE FOR REFERENCE PURPOSE ONLY. THESE PHOTOS REPRESENT WHAT CONDITIONS WERE AT THE TIME THEY WERE TAKEN AND MAY NOT ACCURATELY REPRESENT CURRENT CONDITIONS.
4. GENERAL CONTRACTOR TO PATCH/ FILL OPENINGS AT WALL AND FLOOR PENETRATIONS, COORDINATE WITH MECHANICAL CONTRACTOR.



A PHOTO-A
NTS



1 HVAC DUCTWORK REMOVAL PLAN

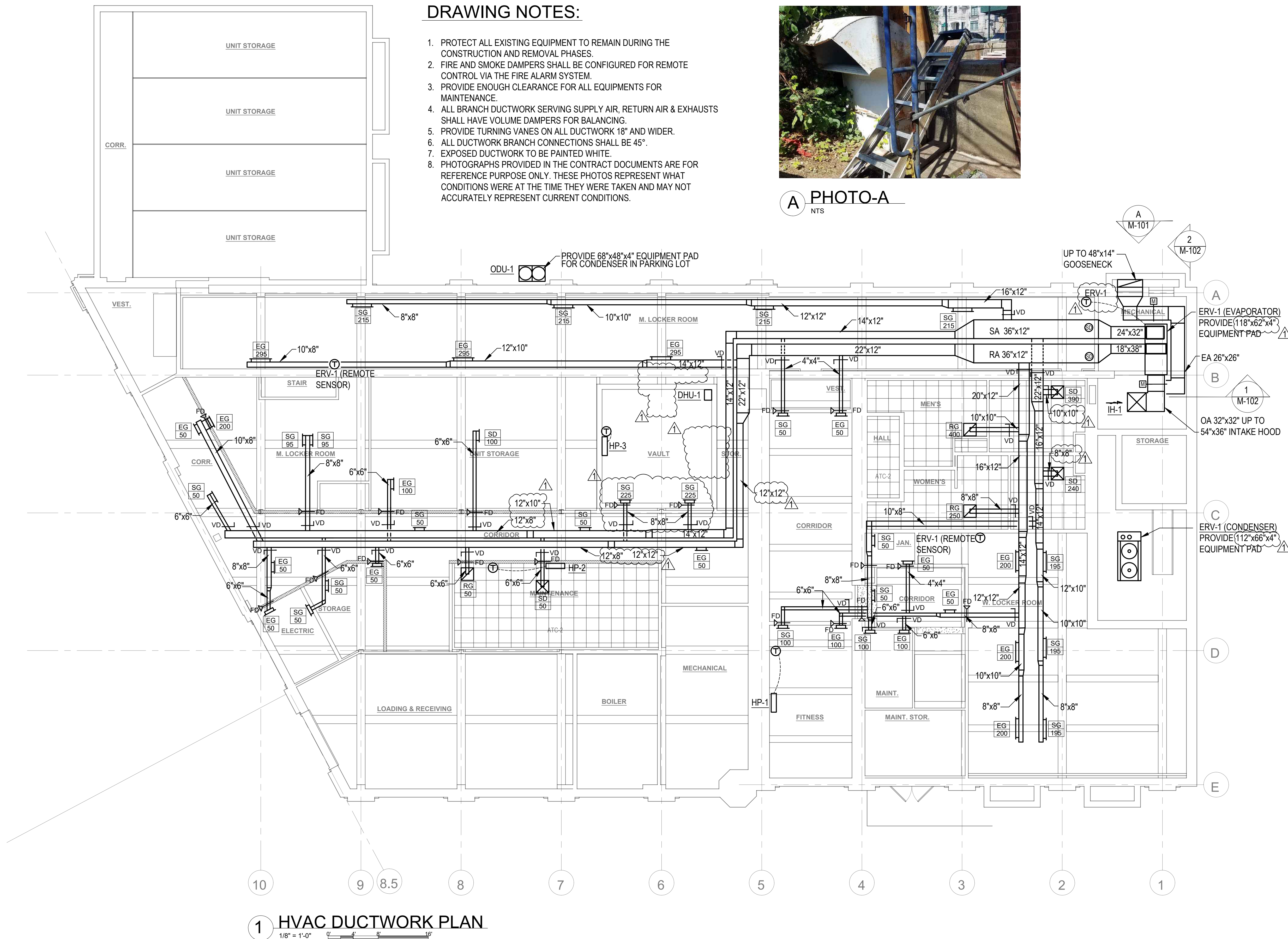
1/8" = 1'-0"

DRAWING NOTES:

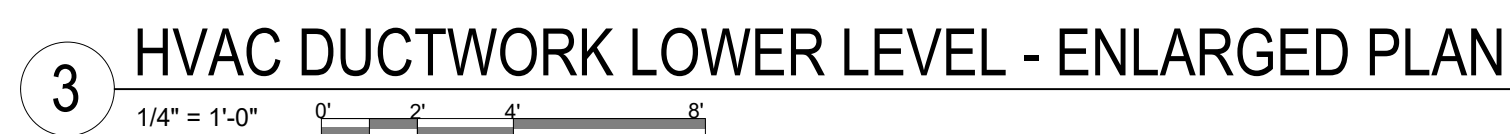
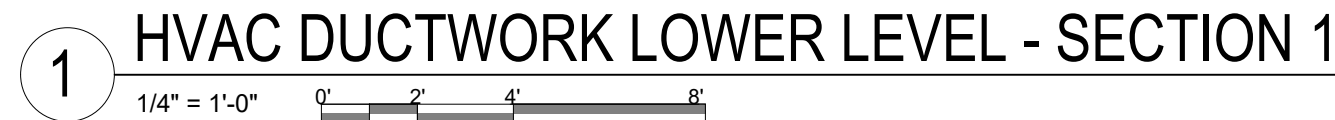
1. PROTECT ALL EXISTING EQUIPMENT TO REMAIN DURING THE CONSTRUCTION AND REMOVAL PHASES.
2. FIRE AND SMOKE DAMPERS SHALL BE CONFIGURED FOR REMOTE CONTROL VIA THE FIRE ALARM SYSTEM.
3. PROVIDE ENOUGH CLEARANCE FOR ALL EQUIPMENTS FOR MAINTENANCE.
4. ALL BRANCH DUCTWORK SERVING SUPPLY AIR, RETURN AIR & EXHAUSTS SHALL HAVE VOLUME DAMPERS FOR BALANCING.
5. PROVIDE TURNING VANES ON ALL DUCTWORK 18" AND WIDER.
6. ALL DUCTWORK BRANCH CONNECTIONS SHALL BE 45°.
7. EXPOSED DUCTWORK TO BE PAINTED WHITE.
8. PHOTOGRAPHS PROVIDED IN THE CONTRACT DOCUMENTS ARE FOR REFERENCE PURPOSE ONLY. THESE PHOTOS REPRESENT WHAT CONDITIONS WERE AT THE TIME THEY WERE TAKEN AND MAY NOT ACCURATELY REPRESENT CURRENT CONDITIONS.

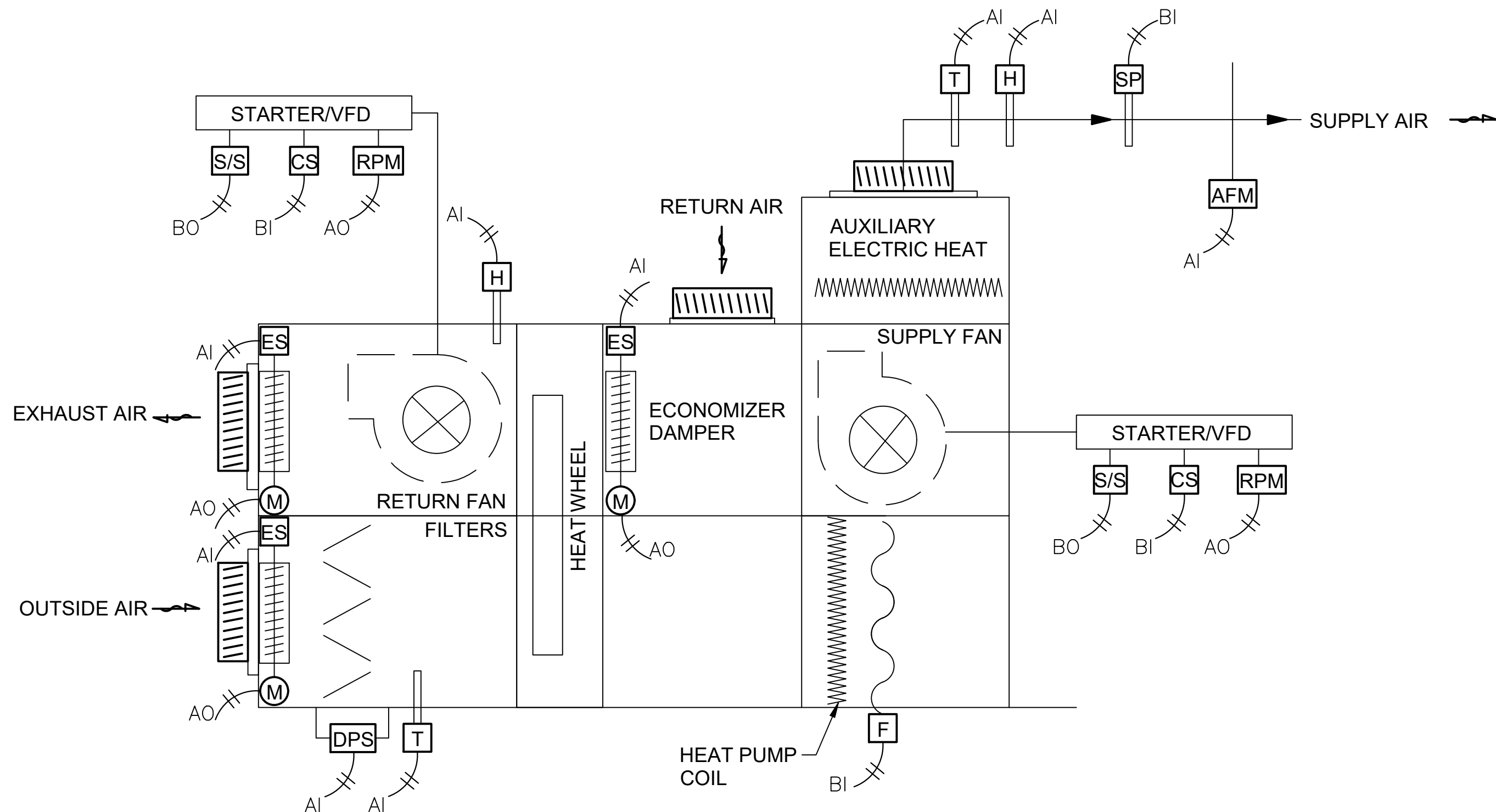


A PHOTO-A
NTS

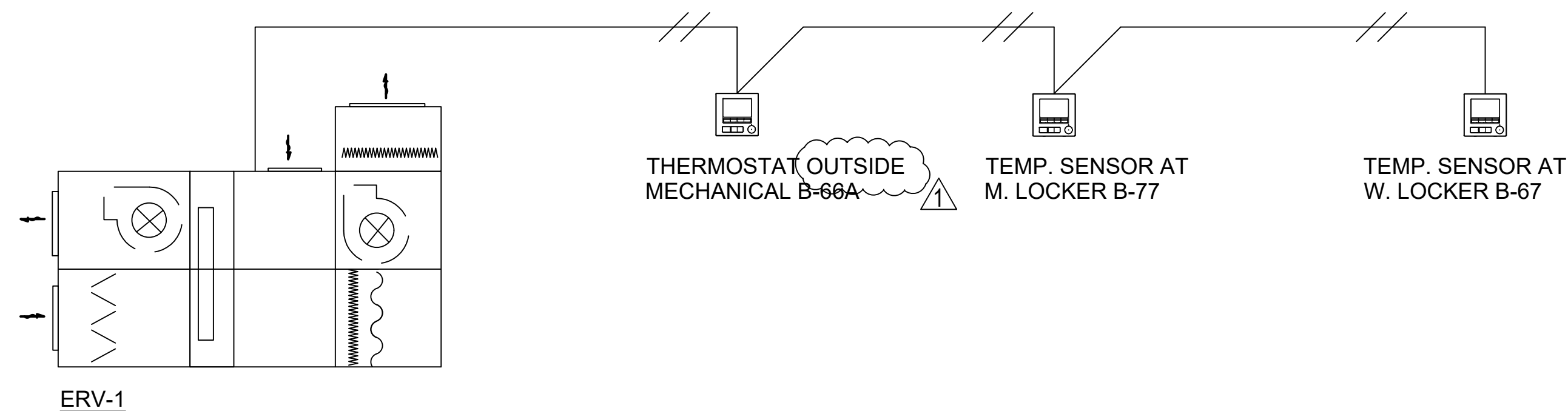


1 HVAC DUCTWORK PLAN
1/8" = 1'-0"

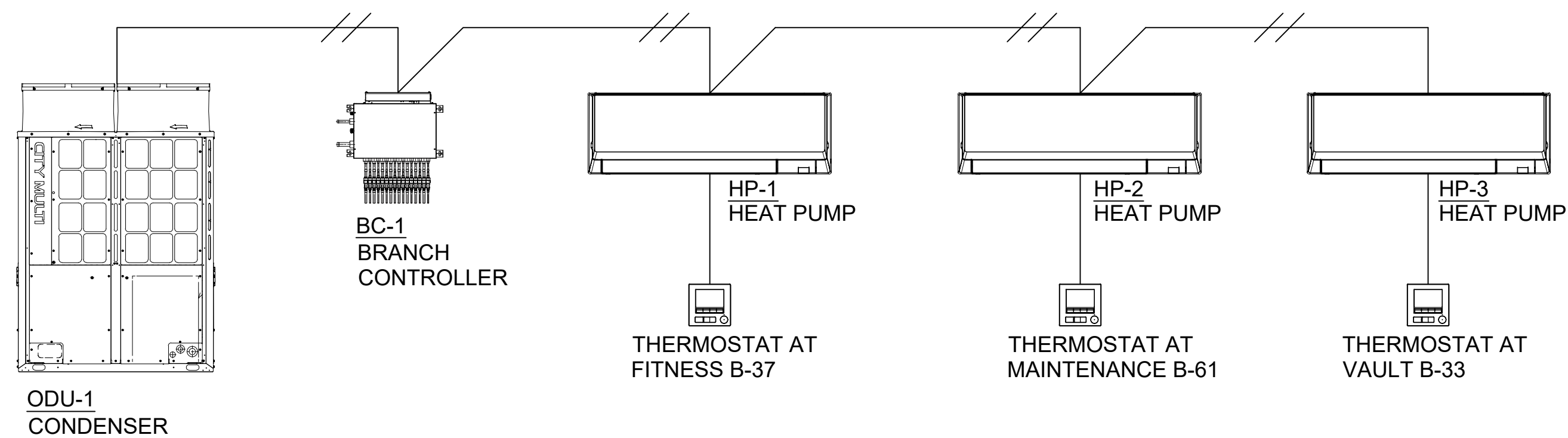




1 ERV-1 AIR HANDLER FLOW DIAGRAM AND POINTS LIST
NTS

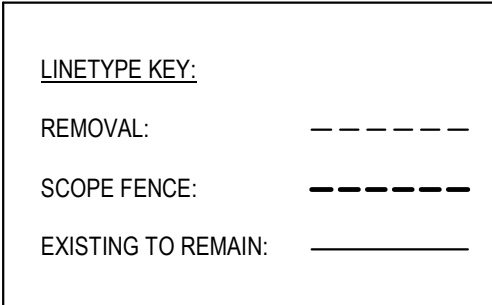


2 ERV-1 AIR HANDLER CONTROL DIAGRAM
NTS



3 DUCTLESS SPLIT HEAT PUMP CONTROL DIAGRAM
NTS

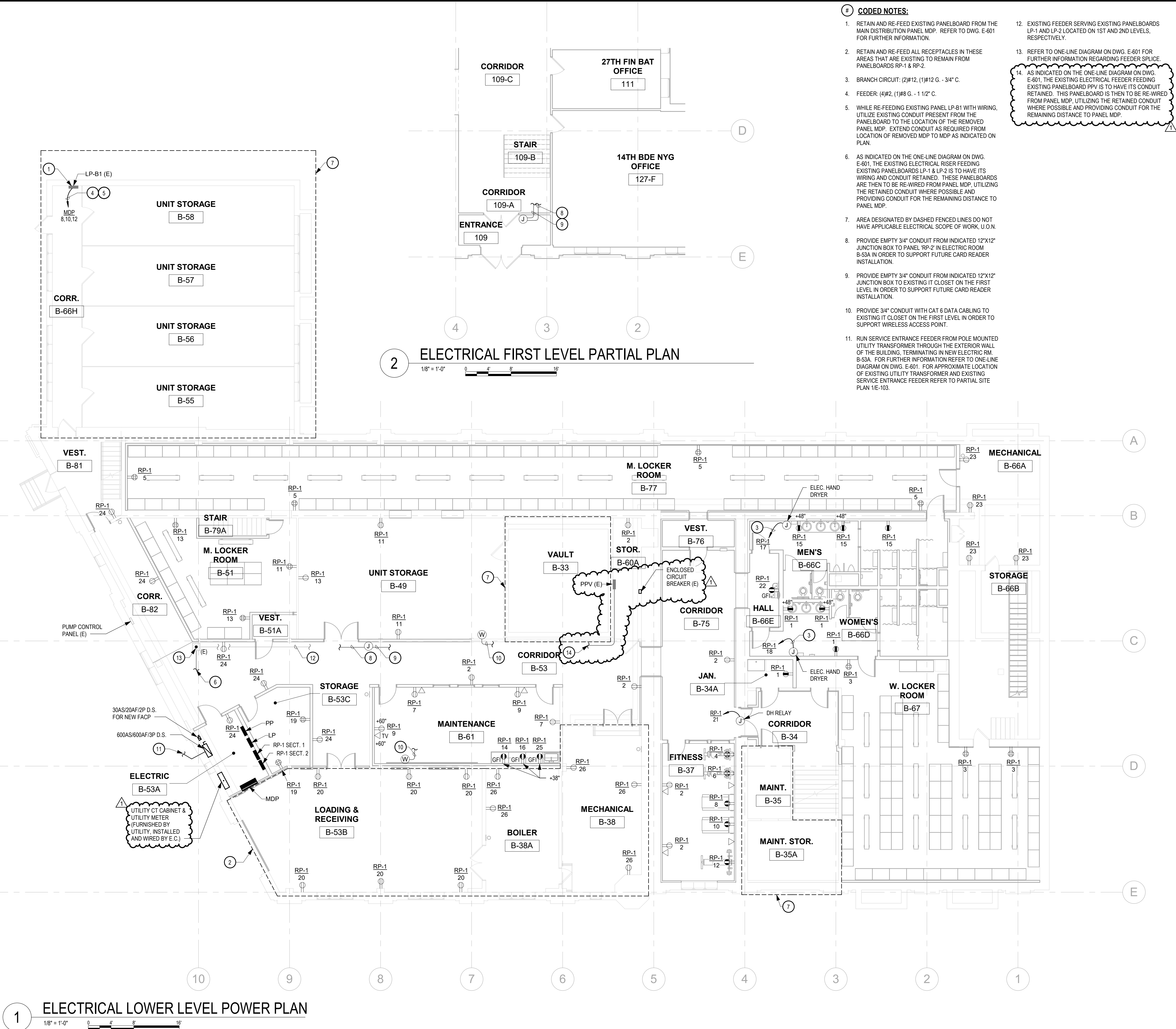
ENERGY RECOVERY UNIT ERV-1												
POINT NAME	HARDWARE POINTS				SOFTWARE POINTS						SHOW ON GRAPHIC	
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM		
SUPPLY AIR FLOW	X								X		X	
RETURN AIR FLOW	X								X		X	
MIXED AIR TEMP	X								X		X	
FILTER DIFFERENTIAL PRESSURE	X								X			
RETURN AIR HUMIDITY	X								X		X	
RETURN AIR TEMP	X								X		X	
SUPPLY AIR TEMP	X								X		X	
SUPPLY AIR HUMIDITY	X								X		X	
RETURN AIR DAMPER END SWITCH	X								X		X	
EXHAUST AIR DAMPER END SWITCH	X								X		X	
OUTSIDE AIR DAMPER END SWITCH	X								X		X	
RETURN FAN VFD SPEED		X							X		X	
SUPPLY FAN VFD SPEED		X							X		X	
HEATING COIL CONTROL		X							X		X	
RETURN AIR DAMPER POSITION	X								X		X	
EXHAUST AIR DAMPER POSITION	X								X		X	
OUTSIDE AIR DAMPER POSITION	X								X		X	
FREEZESTAT			X						X	X	X	
HIGH STATIC SHUTDOWN			X						X	X	X	
RETURN FAN STATUS			X						X		X	
SUPPLY FAN STATUS			X						X		X	
COOLING STAGE				X					X		X	
RETURN FAN START/STOP				X					X		X	
SUPPLY FAN START/STOP				X					X		X	
DEHUMIDIFICATION SETPOINT					X				X		X	
ECONOMIZER MIXED AIR TEMP SETPOINT					X				X		X	
PREHEATING MIXED AIR TEMP SETPOINT					X				X		X	
SUPPLY AIR TEMP SETPOINT					X				X		X	
SCHEDULE								X				
COMPRESSOR RUNTIME EXCEEDED										X		
HIGH MIXED AIR TEMP										X		
HIGH RETURN AIR HUMIDITY										X		
HIGH RETURN AIR TEMP										X		
HIGH SUPPLY AIR TEMP										X		
LOW MIXED AIR TEMP										X		
LOW RETURN AIR HUMIDITY										X		
LOW RETURN AIR TEMP										X		
LOW SUPPLY AIR TEMP										X		
FILTER CHANGE REQUIRED										X	X	
RETURN FAN FAILURE										X		
RETURN FAN IN HAND										X		
RETURN FAN RUNTIME EXCEEDED										X		
SUPPLY FAN FAILURE										X		
SUPPLY FAN IN HAND										X		
SUPPLY FAN RUNTIME EXCEEDED										X		



1. AREA DESIGNATED BY DASHED FENCED LINES ARE NOT IN CONTRACT. U.O.N.
2. AREA DESIGNATED BY DASHED FENCED LINES DO NOT HAVE APPLICABLE ELECTRICAL SCOPE OF WORK. U.O.N. ALL LIGHTING FIXTURES IN THESE AREAS ARE TO BE DISCONNECTED AND REMOVED, WITH WIRING, CONDUIT AND CONTROL DEVICES RETAINED FOR RE-UTILIZATION WITH REPLACEMENT LIGHTING FIXTURES.
3. TRACE THE EXISTING BRANCH CIRCUIT SERVING THE EXISTING MECHANICAL EQUIPMENT UNIT CALLED FOR REMOVAL BACK TO THEIR RESPECTIVE SOURCE(S). DISCONNECT AND REMOVE BRANCH CIRCUITS SERVING EQUIPMENT TO BE REMOVED, AND RETURN THEIR ENTIRETY BACK TO THEIR RESPECTIVE CIRCUIT BREAKERS IN SOURCE PANELBOARD AND "SAFE-OFF" AS REQUIRED FOR POTENTIAL FUTURE RE-USE.
4. AS INDICATED ON ONE-LINE DIAGRAM ON DWG. E-601 DISCONNECT THE EXISTING ELECTRICAL RISER FROM THE REMOVED PANEL, MDP AND REMOVE THE WIRING. RETAIN THE CONDUIT FOR USE DURING RE-CONNECTION TO THE PROPOSED REPLACEMENT PANEL AS SHOWN ON DWG. E-101.

1. IT IS THE DIRECTOR'S REPRESENTATIVE'S INTENT TO REMOVE THE RESPECTIVE EXISTING ELECTRICAL FACILITIES AS REQUIRED IN ORDER TO FACILITATE THE ARCHITECTURAL AND MECHANICAL RENOVATIONS AS REQUIRED. THE ELECTRICAL CONTRACTOR (HEREINAFTER CONTRACTOR C.) SHALL FIELD-VERIFY THE EXACT LOCATION AND QUANTITIES OF ALL EQUIPMENT TO BE REMOVED AND BASE HIS BID ACCORDINGLY (TYP. FOR ALL APPLICABLE AREAS).
2. DISCONNECT AND REMOVE ALL EXISTING POWER OUTLETS, RECEPTACLES AND ASSOCIATED WIRING, ELECTRICAL EQUIPMENT WHIPS, RACEWAY AND CONTROL DEVICES BACK TO THEIR RESPECTIVE SOURCE(S) IN AREAS SHOWN AS A PART OF THIS CONTRACT. CONTRACTOR SHALL FIELD-VERIFY EXISTING EQUIPMENT QUANTITIES AND LOCATIONS AND BASE THEIR BID ACCORDINGLY (TYP. FOR APPLICABLE AREAS).
3. DISCONNECT AND REMOVE ALL EXISTING LIGHTING FIXTURES AND ASSOCIATED WIRING, RACEWAY AND CONTROL DEVICES BACK TO THEIR RESPECTIVE SOURCE(S) IN AREAS SHOWN AS A PART OF THIS CONTRACT. U.O.N. FIELD-VERIFY EXISTING FIXTURE LOCATIONS AND BASE THEIR BID ACCORDINGLY (TYP. FOR APPLICABLE AREAS).
4. C CONTRACTOR SHALL PATCH ALL EXISTING INTERIOR WALL AND FLOOR FINISHES IMPACTED BY THE ELECTRICAL REMOVAL WORK. IMPACTED AREAS SHALL BE PATCHED TO MAINTAIN FIRE RATINGS AS SHOWN ON THE ARCHITECTURAL DRAWINGS AS REQUIRED. COORDINATE FINAL SCOPE OF INTERIOR PATCHWORK WITH C CONTRACTOR AND BASE BID ACCORDINGLY (TYP. FOR APPLICABLE AREAS).
5. PRIOR TO THE COMMENCEMENT OF WORK, COORDINATE IMPACT OF EXISTING BRANCH CIRCUIT FACILITIES WITH PROJECT'S REPRESENTATIVE. COORDINATE ANY AND ALL REQUIRED SHUTDOWN WITH DIRECTOR'S REPRESENTATIVE AT LEAST SEVEN (7) DAYS PRIOR TO IMPACT.
6. FOR ANY EXISTING POWER WIRING, TELEDATA CABLEING AND ASSOCIATED RACEWAY(S) THAT CURRENTLY LAY ABOVE THE CEILING GRID AND IS NO LONGER IN USE, E.C. SHALL COMPLETELY DISCONNECT AND REMOVE ALL BACK TO THEIR RESPECTIVE SOURCE(S).
7. FOR ANY EXISTING POWER WIRING, TELEDATA CABLEING AND ASSOCIATED RACEWAY(S) THAT CURRENTLY LAY ABOVE THE CEILING GRID THAT IS EXISTING TO REMAIN, E.C. SHALL ENSURE THAT THEY ARE PROPERLY SUPPORTED.
8. TRACE ALL EXISTING CIRCUITS IMPACTED BY THE PROJECT WORK AND DETERMINE ALL AREAS AFFECTED BY THE REQUIRED REMOVAL WORK. PROVIDE ALL RECONNECTIONS OF EXISTING REMAINING POWER UTILIZATION EQUIPMENT TO ELECTRICAL DISTRIBUTION FACILITIES AS REQUIRED. MAINTAIN SERVICE TO ALL PRE-EXISTING UTILIZATION FACILITIES WHICH ARE INTENDED TO REMAIN IN SERVICE THROUGHOUT THE DURATION OF CONSTRUCTION. PRIOR TO THE COMMENCEMENT OF WORK, COORDINATE ALL SHUTDOWNS WITH THE DIRECTOR'S REPRESENTATIVE AND OTHER TRADES AS REQUIRED.
9. COORDINATE THE FINAL PROPOSED MEANS AND METHODS OF CONSTRUCTION, EQUIPMENT LOCATIONS AND SCOPE OF WORK WITH ALL ARCHITECTURAL, MECHANICAL, PLUMBING AND SPRINKLER DRAWINGS.
10. PRIOR TO THE COMMENCEMENT OF WORK, COORDINATE ALL ELECTRICAL WORK WITH ALL INVOLVED TRADES, EQUIPMENT VENDORS, UTILITIES AND DIRECTOR'S REPRESENTATIVE AS REQUIRED. BASE BID ACCORDINGLY.
11. REFER TO DWG. E-001 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST AND ABBREVIATIONS.

SHEET: 32 OF 44



CODED NOTES:

1. RETAIN AND RE-FEED EXISTING PANELBOARD FROM THE MAIN DISTRIBUTION PANEL MDP. REFER TO DWG. E-601 FOR FURTHER INFORMATION.
2. RETAIN AND RE-FEED ALL RECEPTACLES IN THESE AREAS THAT ARE EXISTING TO REMAIN FROM PANELBOARDS RP-1 & RP-2.
3. BRANCH CIRCUIT: (2)#12, (1)#12 G. - 3/4" C.
4. FEEDER: (4)#2, (1)#8 G. - 1 1/2" C.
5. WHILE RE-FEEDING EXISTING PANEL LP-B1 WITH WIRING, UTILIZE EXISTING CONDUIT PRESENT FROM THE PANELBOARD TO THE LOCATION OF THE REMOVED PANEL MDP. EXTEND CONDUIT AS REQUIRED FROM LOCATION OF REMOVED MDP TO MDP AS INDICATED ON PLAN.
6. AS INDICATED ON THE ONE-LINE DIAGRAM ON DWG. E-601, THE EXISTING ELECTRICAL RISER FEEDING EXISTING PANELBOARDS LP-1 & LP-2 IS TO HAVE ITS WIRING AND CONDUIT RETAINED. THESE PANELBOARDS ARE THEN TO BE RE-WIRED FROM PANEL MDP, UTILIZING THE RETAINED CONDUIT WHERE POSSIBLE AND PROVIDING CONDUIT FOR THE REMAINING DISTANCE TO PANEL MDP.
7. AREA DESIGNATED BY DASHED FENCED LINES DO NOT HAVE APPLICABLE ELECTRICAL SCOPE OF WORK, U.O.N.
8. PROVIDE EMPTY 3/4" CONDUIT FROM INDICATED 12"X12" JUNCTION BOX TO PANEL "RP-2" IN ELECTRIC ROOM B-53A IN ORDER TO SUPPORT FUTURE CARD READER INSTALLATION.
9. PROVIDE EMPTY 3/4" CONDUIT FROM INDICATED 12"X12" JUNCTION BOX TO EXISTING IT CLOSET ON THE FIRST LEVEL IN ORDER TO SUPPORT FUTURE CARD READER INSTALLATION.
10. PROVIDE 3/4" CONDUIT WITH CAT 6 DATA CABLING TO EXISTING IT CLOSET ON THE FIRST LEVEL IN ORDER TO SUPPORT WIRELESS ACCESS POINT.
11. RUN SERVICE ENTRANCE FEEDER FROM POLE MOUNTED UTILITY TRANSFORMER THROUGH THE EXTERIOR WALL OF THE BUILDING, TERMINATING IN NEW ELECTRIC RM. B-53A. FOR FURTHER INFORMATION REFER TO ONE-LINE DIAGRAM ON DWG. E-601. FOR APPROXIMATE LOCATION OF EXISTING UTILITY TRANSFORMER AND EXISTING SERVICE ENTRANCE FEEDER REFER TO PARTIAL SITE PLAN 1/E-103.

12. EXISTING FEEDER SERVING EXISTING PANELBOARDS LP-1 AND LP-2 LOCATED ON 1ST AND 2ND LEVELS, RESPECTIVELY.
13. REFER TO ONE-LINE DIAGRAM ON DWG. E-601 FOR FURTHER INFORMATION REGARDING FEEDER SPLICE
14. AS INDICATED ON THE ONE-LINE DIAGRAM ON DWG. E-601, THE EXISTING ELECTRICAL FEEDER FEEDING EXISTING PANELBOARD PPV IS TO HAVE ITS CONDUIT RETAINED. THIS PANELBOARD IS THEN TO BE RE-WIRED FROM PANEL MDP, UTILIZING THE RETAINED CONDUIT WHERE POSSIBLE AND PROVIDING CONDUIT FOR THE REMAINING DISTANCE TO PANEL MDP.

POWER PLAN NOTES:

1. COORDINATE FINAL MEANS, METHODS, AND SCOPE OF WORK WITH THE ARCHITECTURAL, MECHANICAL AND PLUMBING DRAWINGS AND BASE BID ACCORDINGLY.
2. FURNISH AND INSTALL ALL ELECTRICAL ROUGH IN EQUIPMENT (RECEPTACLES, ETC.) AND APPURTENANCES PER NEC (MIN.). SUBMIT COLOR OPTIONS FOR ANY AND ALL WIRING DEVICE PLATES FOR SELECTION BY DIRECTOR'S REPRESENTATIVE.
3. ALL WORK SHALL BE DONE IN ACCORDANCE WITH NATIONAL, STATE, AND LOCAL CODES.
4. COORDINATE ALL WORK WITH ALL INVOLVED TRADES, EQUIPMENT VENDORS, UTILITIES, AND THE DIRECTOR'S REPRESENTATIVE AS REQUIRED. BASE BID ACCORDINGLY.
5. FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK. COORDINATE WITH OTHER TRADE CONTRACTORS, AND THE DIRECTOR'S REPRESENTATIVE.
6. REFER TO NEC TABLE 310.15(B)(16) FOR AMPACITIES OF CONDUCTORS. 80°C TERMINALS, 40°C AMBIENT TEMPERATURE FOR LOADS OF 0-99 AMPERES, AND 75°C TERMINALS, 40°C AMBIENT TEMPERATURE FOR LOADS OF 100 AMPERES AND GREATER.
7. ALL WIRING SHALL BE PROPERLY IDENTIFIED PER NEC 310.110 & 310.120 AS REQUIRED.
8. REFER TO APPLICABLE MANUFACTURER'S EQUIPMENT CATALOG CUTS FOR FINAL RATINGS AND/OR CHARACTERISTICS OF SPECIAL EQUIPMENT DEVICES THAT REQUIRE PROVISIONS UNDER THIS CONTRACT. BASE BID ACCORDINGLY.
9. ALL EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
10. HOMERUNS ARE SHOWN IN LOCATIONS FOR DRAWING CLARITY. THE CHOICE TO FEED POWER FROM OTHER LOCATIONS IS ACCEPTABLE AS LONG AS FUNCTIONAL INTENT IS MAINTAINED AND FIELD DRAWINGS MARKED ACCORDINGLY.
11. ALL PANELBOARDS INDICATED ON THIS FLOOR PLAN ARE PROPOSED. U.O.N. SEE DWG. E-501 & 502 FOR FURTHER INFORMATION ON ALL PANELBOARDS.
12. ALL BRANCH CIRCUITS ASSIGNED TO RECEPTACLES, JUNCTION BOXES AND EQUIPMENT SHALL BE CIRCUITED TO PANELBOARDS AS INDICATED ON THE PANEL SCHEDULES, U.O.N.
13. BRANCH CIRCUITS SERVING EQUIPMENT SHALL BE PROVIDED WITH DEDICATED NEUTRAL CONDUCTORS THAT DO NOT SERVE CIRCUITS SUPPLYING OTHER LOADS. NEUTRAL CONDUCTORS SERVING EQUIPMENT BRANCH CIRCUITS SHALL BE #10 AWG.
14. PROVIDE TYPEWRITTEN DIRECTORIES FOR ALL PANELBOARDS. PROVIDE DATE OF FINAL COMPLETION OF DIRECTORY IN THE LOWER RIGHT HAND CORNER OF THE DIRECTORY.
15. BRANCH CIRCUIT RACEWAYS SERVING MOTOR LOADS AND GENERAL PURPOSE RECEPTACLES SHALL BE PROVIDED WITH A GROUND CONDUCTOR.
16. PROVIDE INSULATED GROUNDING CONDUCTORS AS REQUIRED FOR ALL EQUIPMENT AND RECEPTACLES. GROUND CONDUCTORS MAY NOT BE EXPLICITLY SHOWN IN ALL ILLUSTRATED WIRING DESIGNATIONS.
17. ALL EXPOSED WIRING RUNS IN AREAS WITHOUT A DROP CEILING SHALL BE RUN IN RGS CONDUIT, NO EXCEPTIONS. CONCEALED WIRING AND WIRING IN DROP CEILING CAVITIES SHALL BE PERMITTED TO BE MC CABLE WITH LISTED FITTINGS AND GROUNDING ARMOR UNLESS INDICATED OTHERWISE.
18. WHERE MORE THAN THREE CURRENT CARRYING CONDUCTORS PER RACEWAY IS USED, NEC TABLE 310.15(B)(2)(A) DERATING FACTORS SHALL BE APPLIED. IN ADDITION, CONDUIT FILL SHALL COMPLY WITH NEC 344.22 AND 352.22 RESPECTIVELY.
19. ALL WIRING AND EQUIPMENT WITHIN DROP CEILING SPACES, AND/OR WITHIN DUCTS, PLENUMS, AND OTHER AIR-HANDLING SPACES SHALL BE LISTED FOR PLENUM USE, AND SHALL CONFORM WITH NEC 300.22.
20. MEASURE PHASE LOADS (TRUE RMS) OF ALL PANELBOARDS UTILIZED TO COMPLETE THE CONTRACT WORK, AND BALANCE LOAD AS REQUIRED.
21. REFER TO ELECTRICAL ONE-LINE DIAGRAM AND PANELBOARD SCHEDULES FOR ADDITIONAL REQUIREMENTS THAT MAY APPLY.
22. REFER TO DWG. E-601 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST AND ABBREVIATIONS.

LINE TYPE KEY:

- EXISTING TO REMAIN: _____
- PROPOSED: _____
- SCOPE FENCE: - - - - -

DESIGN & CONSTRUCTION

CONSULTANT:

CERTIFICATE OF AUTHORIZATION #: 018342



UNIFORM CODE STATEMENT:
TO THE BEST OF THE REGISTERED DESIGN PROFESSIONAL'S KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND/OR SPECS ARE IN COMPLIANCE WITH THE 2020 UNIFORM CODE.

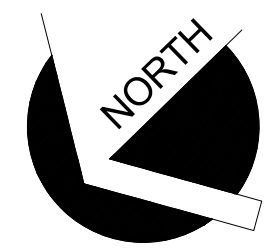
ENERGY CODE COMPLIANCE STATEMENT:
TO THE BEST OF THE REGISTERED DESIGN PROFESSIONAL'S KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND/OR SPECS ARE IN COMPLIANCE WITH THE 2020 ENERGY CODE.

WARNING:

THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS A MISDEMEANOR.



REGISTRATION EXPIRES:
05/31/2025



CONTRACT:

ELECTRICAL

TITLE:

REHABILITATE LOCKER ROOMS & LATRINES

LOCATION:

STATE ARMOY
150-74 6TH AVENUE
WHITESTONE, NY

CLIENT:

DIVISION OF MILITARY AND
NAVAL AFFAIRS

1	06/21/23	ADDENDUM
0	05/12/23	ISSUED FOR
MARK	DATE	DESCRIPTION
PROJECT NUMBER:	47352 - E	
DESIGNED BY:	AG	
DRAWN BY:	RW	
FIELD CHECK:	AG	
APPROVED:		
SHEET TITLE:		

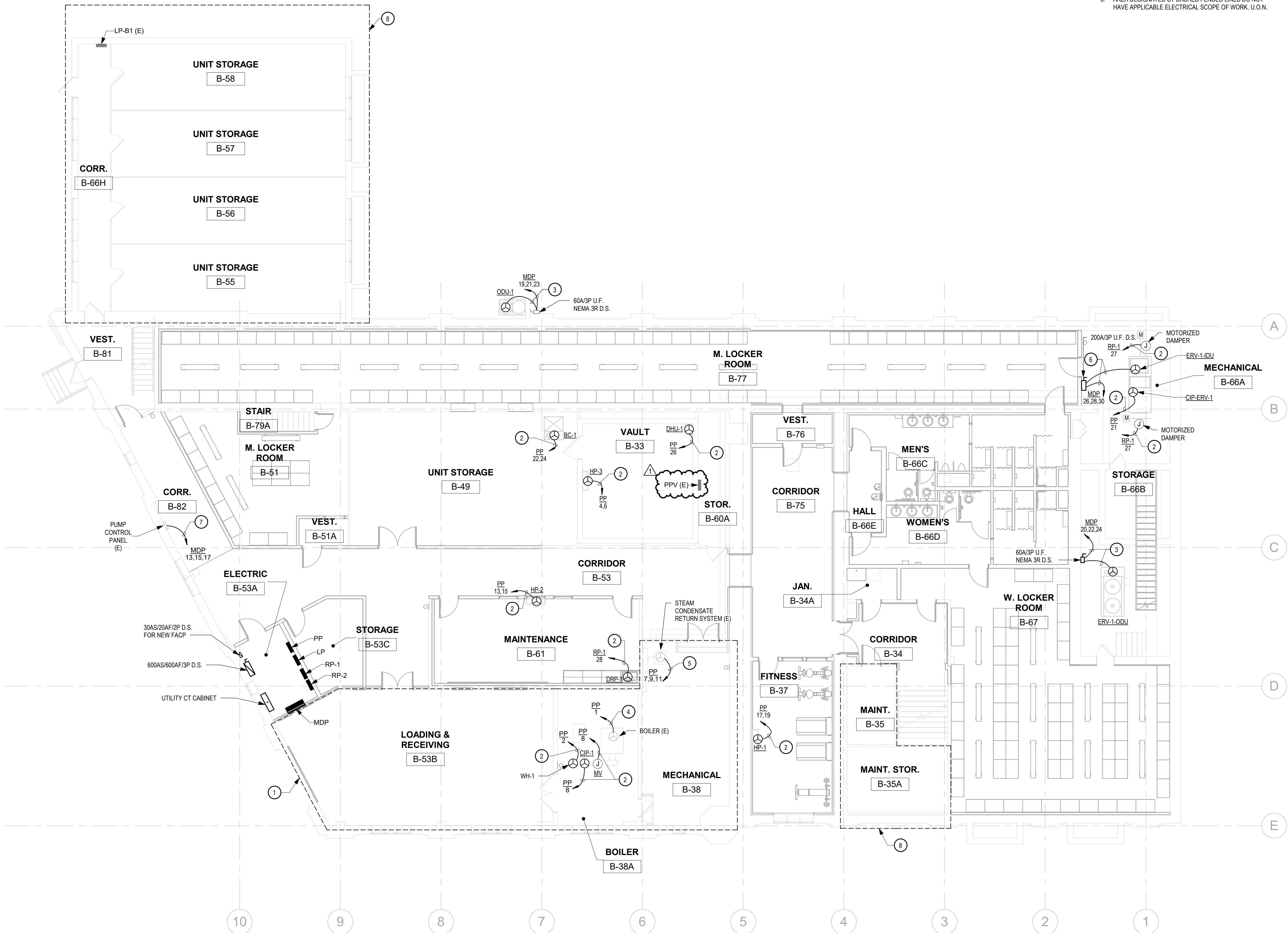
POWER PLANS

DRAWING NUMBER:

E-101

SHEET: 33

OF 44



CODED NOTES:

1. ALL MECHANICAL EQUIPMENT THAT IS EXISTING TO REMAIN IN THESE AREAS IS TO BE RETAINED AND RE-FED AS INDICATED ON FLOOR PLAN.
2. BRANCH CIRCUIT: (2)#12, (1)#12 G. - 3/4" C.
3. BRANCH CIRCUIT: (3)#6, (1)#10 G. - 3/4" C.
4. BRANCH CIRCUIT: (2)#10, (1)#10 G. - 3/4" C.
5. BRANCH CIRCUIT: (3)#12, (1)#12 G. - 3/4" C.
6. FEEDER: (3)#10, (1)#6 G. - 1 1/2" C.
7. FEEDER: (3)#4, (1)#10 G. - 1 1/4" C.
8. AREA DESIGNATED BY DASHED FENCED LINES DO NOT HAVE APPLICABLE ELECTRICAL SCOPE OF WORK, U.O.N.

MECHANICAL POWER PLAN NOTES:

1. THE INTENTION OF THIS DRAWING IS TO SHOW THE LAYOUT OF THE MECHANICAL AND PLUMBING EQUIPMENT AND RESPECTIVE ELECTRICAL CONNECTIONS WITH ASSOCIATED DEVICES. FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL MECHANICAL AND PLUMBING EQUIPMENT AND RESPECTIVE CONTROLS, REFER TO MECHANICAL AND PLUMBING PLANS. THIS DRAWING IS TO BE USED FOR CIRCUITING PURPOSES ONLY.
2. SUPPLEMENTAL AIR CONDITIONING EQUIPMENT, CONDENSING UNITS, ETC. ARE INSTALLED IN LOCATIONS SHOWN ON THE MECHANICAL PLANS BY OTHERS. PROVIDE ALL REQUIRED DISCONNECT & TOGGLE SWITCHES, JUNCTION BOXES, ETC. AS REQUIRED AND MAKE CONNECTIONS AS INDICATED.
3. COORDINATE FINAL MEANS AND METHODS, AND SCOPE OF WORK WITH THE MECHANICAL AND PLUMBING DRAWINGS AND BASE BID ACCORDINGLY.
4. FURNISH AND INSTALL ALL ELECTRICAL ROUGH IN EQUIPMENT AND APPURTENANCES PER THE NEC.
5. COORDINATE ALL WORK WITH ALL INVOLVED TRADE CONTRACTORS, THE DIRECTOR'S REPRESENTATIVE, EQUIPMENT VENDORS AND UTILITIES AS REQUIRED. BASE BID ACCORDINGLY.
6. FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE DIRECTOR'S REPRESENTATIVE.
7. REFER TO NEC TABLE 310.15(B)(16) FOR AMPACITIES OF CONDUCTORS. 60°C TERMINALS, 40°C AMBIENT TEMPERATURE FOR LOADS OF 0-99 AMPERES, AND 75°C TERMINALS, 40°C AMBIENT TEMPERATURE FOR LOADS OF 100 AMPERES AND GREATER.
8. ALL WIRING SHALL BE PROPERLY IDENTIFIED PER NEC 310.110 & 310.120 AS REQUIRED.
9. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR MECHANICAL AND PLUMBING EQUIPMENT DEVICES THAT REQUIRE POWER WIRING, AND BASE BID ACCORDINGLY.
10. ALL EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
11. HOMERUNS ARE SHOWN IN LOCATIONS FOR DRAWING CLARITY. POWER MAY BE FED FROM OTHER CIRCUIT BREAKERS WITHIN PANELBOARDS DESIGNATED, AS LONG AS FUNCTIONAL INTENT IS MAINTAINED, AND FIELD DRAWINGS MARKED ACCORDINGLY.
12. BRANCH CIRCUITS ARE DESIGNATED BY THE NUMBER(S) ADJACENT TO AND/OR HOMERUNS SHOWN FROM ALL MECHANICAL AND PLUMBING EQUIPMENT INDICATES CIRCUIT NUMBERS IN PANELBOARD, U.O.N. PROVIDE ALL WIRING, CONDUIT AND BOXES AS REQUIRED TO ENERGIZE THE EQUIPMENT AS INDICATED.
13. PROVIDE INSULATED GROUNDING CONDUCTORS AS REQUIRED FOR ALL EQUIPMENT. ETC. GROUND CONDUCTORS MAY NOT BE EXPLICITLY SHOWN IN ALL ILLUSTRATED WIRING DESIGNATIONS.
14. ALL EXPOSED WIRING RUNS IN AREAS WITHOUT A DROP CEILING SHALL BE RUN IN RGS CONDUIT. NO EXCEPTIONS. CONCEALED WIRING AND WIRING IN DROP CEILING CAVITIES SHALL BE PERMITTED TO BE MC CABLE WITH LISTED FITTINGS AND GROUNDING ARMOR UNLESS INDICATED OTHERWISE.
15. WHERE MORE THAN THREE CURRENT CARRYING CONDUCTORS PER RACEWAY IS USED, NEC TABLE 310.15(B)(2)(A) DERATING FACTORS SHALL BE APPLIED. IN ADDITION, CONDUIT FILL SHALL COMPLY WITH NEC 344.22 AND 352.22 RESPECTIVELY.
16. CONDUCTORS OR CABLES INSTALLED IN CONDUIT EXPOSED TO DIRECT SUNLIGHT ON OR ABOVE ROOFTOPS SHALL BE DERATED AND SIZE-ADJUSTED IN ORDER TO COMPLY WITH NEC 310.15(B)(2)(b).
17. ALL WIRING AND EQUIPMENT WITHIN DROP CEILING SPACES, AND/OR WITHIN DUCTS, PLENUMS, AND OTHER AIR-HANDLING SPACES SHALL BE LISTED FOR PLENUM USE, AND SHALL CONFORM WITH NEC 300.22.
18. MEASURE PHASE LOADS (TRUE RMS) OF ALL PANELBOARDS UTILIZED TO COMPLETE THE CONTRACT WORK, AND BALANCE LOADS AS REQUIRED.
19. REFER TO ELECTRICAL ONE-LINE DIAGRAM AND PANELBOARD SCHEDULES FOR ADDITIONAL REQUIREMENTS THAT MAY APPLY.
20. REFER TO DWG. E-001 FOR ELECTRICAL SYMBOL LIST AND ABBREVIATIONS.

LINETYPE KEY:

- EXISTING TO REMAIN: _____
- PROPOSED: _____
- SCOPE FENCE: - - - - -

DESIGN & CONSTRUCTION

CONSULTANT:

CERTIFICATE OF AUTHORIZATION #: 018342

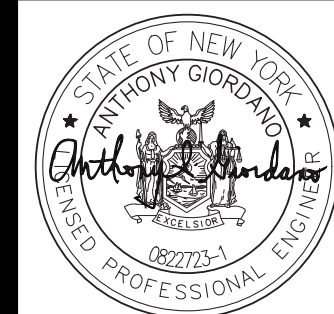


UNIFORM CODE STATEMENT:
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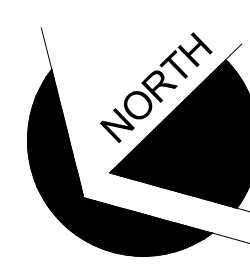
ENERGY CODE COMPLIANCE STATEMENT:
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REGISTRATION EXPIRES:
05/31/2025



CONTRACT:

ELECTRICAL

TITLE:

REHABILITATE LOCKER ROOMS & LATRINES

LOCATION:

STATE ARMORY
150-74 6TH AVENUE
WHITESTONE, NY

CLIENT:

DIVISION OF MILITARY AND
NAVAL AFFAIRS

1	06/21/23	ADDENDUM #1
0	05/12/23	ISSUED FOR BID
MARK	DATE	DESCRIPTION
PROJECT NUMBER:	47352 - E	
DESIGNED BY:	AG	
DRAWN BY:	MS	
FIELD CHECK:	AG	
APPROVED:		
SHEET TITLE:		

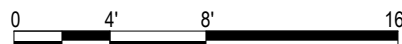
LOWER LEVEL MECHANICAL POWER PLAN

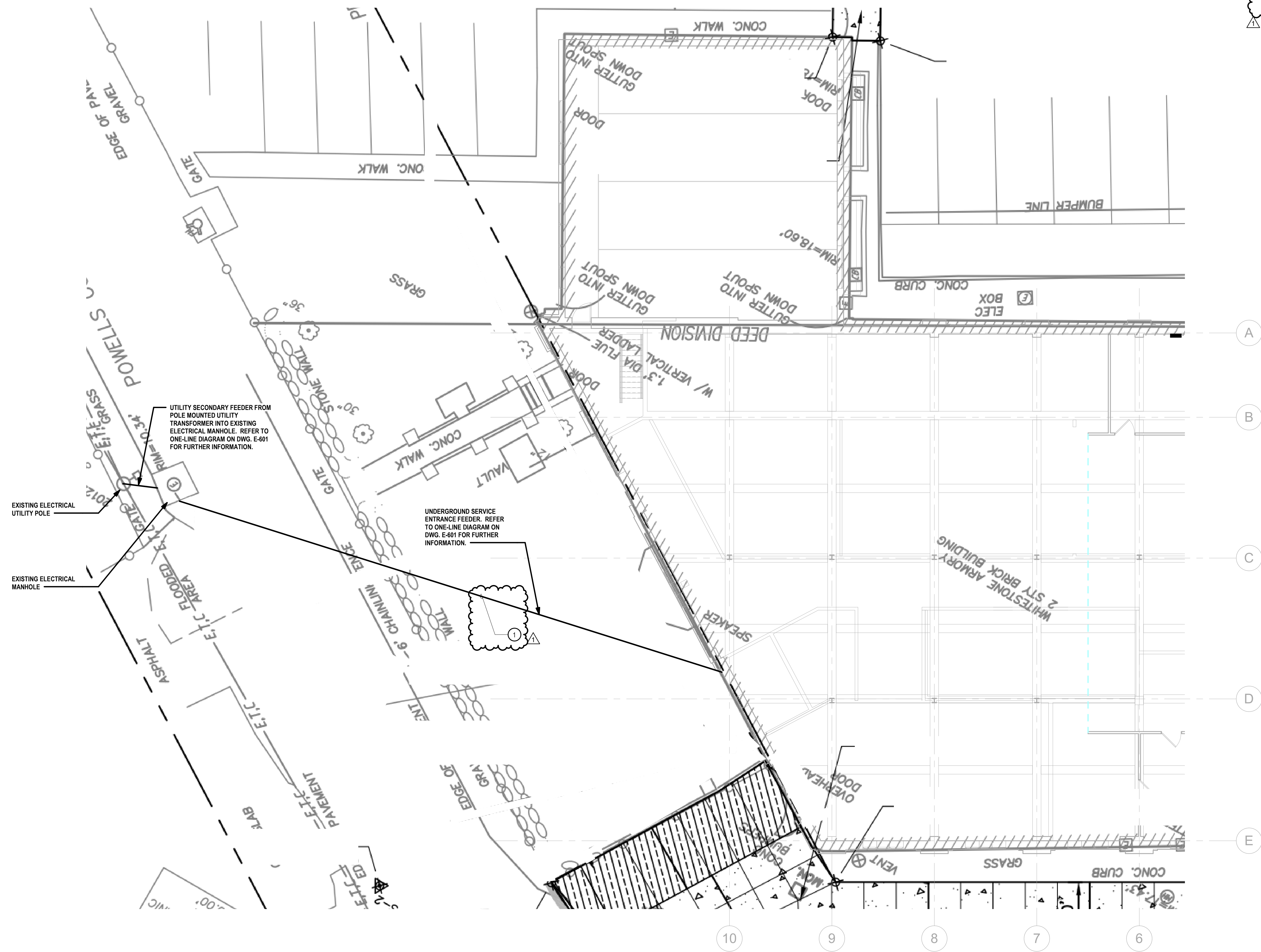
DRAWING NUMBER:

E-102

ELECTRICAL LOWER LEVEL MECHANICAL POWER PLAN

1/8" = 1'-0"





CODED NOTES:

1. FOR THE INSTALLATION OF THE UNDERGROUND SERVICE ENTRANCE FEEDER FROM POLE MOUNTED UTILITY TRANSFORMER INTO THE BUILDING, ELECTRICAL CONTRACT SHALL BE RESPONSIBLE FOR ALL ASSOCIATED TRENCHING, BACKFILLING AND RESTORATION. FOR GRASS, SOIL, OR GRAVEL AREAS, REFER TO DETAIL 3/E-702. FOR PAVED AREAS, REFER TO DETAIL 4/E-702.

DESIGN & CONSTRUCTION

CONSULTANT:

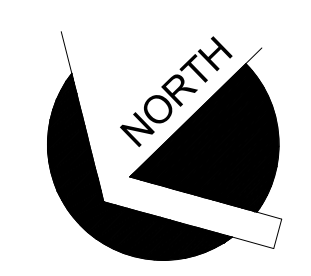
CERTIFICATE OF AUTHORIZATION #: 018342



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CONTRACT: ELECTRICAL

TITLE: REHABILITATE LOCKER ROOMS & LATRINES

LOCATION: STATE ARMY
150-74 6TH AVENUE
WHITESTONE, NY

CLIENT: DIVISION OF MILITARY AND NAVAL AFFAIRS

1	06/21/23	ADDENDUM #1
0	05/12/23	ISSUED FOR BID
MARK	DATE	DESCRIPTION
PROJECT NUMBER:	47352 - E	
DESIGNED BY:	AG	
DRAWN BY:	MS	
FIELD CHECK:	AG	
APPROVED:		
SHEET TITLE:		

PARTIAL SITE PLAN

DRAWING NUMBER:
E-103

BIM 360://47352 Whitestone Armory - Rehab Locker Rooms & Latrines/077948_ELEC_CENTRAL_R20.rvt
6/23/2023 10:49:40 AM
38x24 PLOT SHEET

LIGHTING FIXTURE SCHEDULE						
TYPE	DESCRIPTION	VOLTAGE	VA	MANUFACTURER	MODEL	COMMENTS
L1	1X4 PENDANT MOUNTED LED LIGHT FIXTURE	120 V	30.10 VA	COLUMBIA LIGHTING	MPS4-35MW-CW-ED1U-MPSZT	OR APPROVED EQUAL. MOUNTING HEIGHT 10'-8"
L2	2X2 RECESSED LED LIGHT FIXTURE	120 V	40.00 VA	COLUMBIA LIGHTING	CFF22-40/33/2835	OR APPROVED EQUAL. FOR HALF SHADED EM FIXTURES, PROVIDE ELL14 EMERGENCY BATTERY PACK. MOUNTING HEIGHT 8'-6"
L3	WALL MOUNTED LED FIXTURE	120 V	25.00 VA	LITHONIA LIGHTING	BLWP4-30L-ADSM-MVOLT-EZ1-LP840	OR APPROVED EQUAL. FOR HALF SHADED EM FIXTURES, PROVIDE ELL14 EMERGENCY BATTERY PACK. MOUNTING HEIGHT 9'-0"

EXIT SIGN SCHEDULE						
TYPE	DESCRIPTION	VOLTAGE	VA	MANUFACTURER	MODEL	COMMENTS
X1	WALL MOUNTED EXIT SIGN	120 V	4.00 VA	LITHONIA	LHQM-LED-R-SD	OR APPROVED EQUAL. DIRECTIONAL ARROWS AS SHOWN ON LIGHTING PLAN.
X2	CEILING MOUNTED EXIT SIGN	120 V	4.00 VA	LITHONIA	LHQM-LED-R-SD	OR APPROVED EQUAL. DIRECTIONAL ARROWS AS SHOWN ON LIGHTING PLAN.

MECHANICAL EQUIPMENT CONNECTION SCHEDULE																								
ID / TAG	DESCRIPTION	FLA	VA	VOLTAGE	PHASE	NORMAL	EMERGENCY	LEGALLY REQUIRED STANDBY	CONTROLLER FURNISHED BY DIV. 23	CONTROLLER FURNISHED BY DIV. 26	CONTROLLER TYPE	CONTROLLER STARTER NEMA SIZE	CONTROLLER ENCLOSURE	CONTROLLER OCPD TYPE	CONTROLLER OCPD RATING	DISCONNECT SWITCH REQUIRED	DISCONNECT FURNISHED BY DIV. 26	DISCONNECT FURNISHED BY OTHERS	DISCONNECT FURNISHED BY DIV. 23	DISCONNECT SWITCH POLES	DISCONNECT SWITCH RATING	Panel	Circuit Number	REMARKS
BC-1	CEILING MOUNTED INDOOR BRANCH CONTROLLER	0 A	83.20 VA	208 V	1	Yes	No	No	Yes	No					0 A	No	No	No	No	2	0 A	PP	22,24	
BOILER (E)	EXISTING BOILER	0 A	2190.00 VA	120 V	1	Yes	No	No	Yes	No					0 A	No	No	No	No	1	0 A	PP	1	
CIP-ERV-1	CIRC. PUMP	1 A	78.00 VA	120 V	1	Yes	No	No	Yes	No					0 A	No	No	No	No	1	0 A	PP	21	
CP-1	CIRC. PUMP	5 A	600.00 VA	120 V	1	Yes	No	No	Yes	No					0 A	No	No	No	No	1	0 A	PP	8	
DHU-1	DEHUMIDIFIER	3 A	363.00 VA	120 V	1	Yes	No	No	Yes	No					0 A	No	No	No	No	1	0 A	PP	26	
DRP-1	DRAIN PUMP	7 A	828.00 VA	120 V	1	Yes	No	No	Yes	No					0 A	No	No	No	No	1	0 A	RP-1	28	
ERV-1-IDU	ENERGY RECOVERY VENTILATOR	114 A	51157.9 0 VA	208 V	3	Yes	No	No	Yes	No					0 A	Yes	Yes	No	No	3	200 A	MDP	26,28,30	
ERV-1-ODU	ENERGY RECOVERY VENTILATOR	39 A	15851.7 0 VA	208 V	3	Yes	No	No	Yes	No					0 A	Yes	Yes	No	No	3	60 A	MDP	20,22,24	
HP-1	HEAT PUMP	0 A	90.00 VA	208 V	1	Yes	No	No	Yes	No					0 A	No	No	No	No	2	0 A	PP	17,19	
HP-2	HEAT PUMP	0 A	90.00 VA	208 V	1	Yes	No	No	Yes	No					0 A	No	No	No	No	2	0 A	PP	13,15	
HP-3	HEAT PUMP	0 A	90.00 VA	208 V	1	Yes	No	No	Yes	No					0 A	No	No	No	No	2	0 A	PP	4,6	
ODU-1	OUTDOOR CONDENSER	38 A	13690.1 3 VA	208 V	3	Yes	No	No	Yes	No					0 A	Yes	Yes	No	No	3	60 A	MDP	19,21,23	
STEAM CONDENSATE RETURN SYSTEM (E)	EXISTING STEAM RETURN SYSTEM	0 A	0.00 VA	208 V	3	Yes	No	No	Yes	No					0 A	No	No	No	No	3	0 A	PP	7,9,11	
WH-1	GAS WATER HEATER	0 A	0.00 VA	120 V	1	Yes	No	No	Yes	No					0 A	No	No	No	No	1	0 A	PP	2	

PANEL SCHEDULE													
DESIGNATION: MDP LOCATION: ELECTRIC B-53A FED FROM: SVC. ENT. 600A D.S. VIA UTILITY XFMR. VOLTAGE: 208/120 WYE PHASE, WIRES: 3PH, 4W						MAINS TYPE: 600A MCB OCPD RATING: 600 A BUS RATING: 600 A PANEL MOUNTING: SURFACE MIN. BUS BRACING 42 KA/IC							
CKT NO.	LOAD DESCRIPTION	AMPS	POLES	CONN. LOAD PHASE A (KVA)		CONN. LOAD PHASE B (KVA)		CONN. LOAD PHASE C (KVA)		POLES	AMPS	LOAD DESCRIPTION	CKT NO.
1	RP-1 (N) & RP-2 (N)	225 A	3	6.01	1.29					3	100 A	LP (N)	2
3	--	--	--			3.49	1.03			--	--	--	4
5	--	--	--					3.42	0.81	--	--	--	6
7	PP (N)	100 A	3	3.24	3.00					3	100 A	LP-B1 (EXISTING)	8
9	--	--	--			0.21	3.00			--	--	--	10
11	--	--	--					0.13	3.00	--	--	--	12
13	PUMP CONTROL PANEL (EXISTING)	70 A	3	4.51	5.40					3	150 A	LP-1 & LP-2 (EXISTING)	14
15	--	--	--			4.51	5.40			--	--	--	16
17	--	--	--					4.51	5.40	--	--	--	18
19	ODU-1	60 A	3	4.56	5.28					3	60 A	ERV-1-ODU	20
21	--	--	--			4.56	5.28			--	--	--	22
23	--	--	--					4.56	5.28	--	--	--	24
25	PPV (EXISTING)	100 A	3	2.24	17.05					3	150 A	ERV-1-IDU	26
27	--	--	--			1.72	17.05			--	--	--	28
29	--	--	--					1.31	17.05	--	--	--	30
31	SPARE	20 A	1	0.00	0.00					1	20 A	SPARE	32
33	SPARE	20 A	1			0.00	0.00			1	20 A	SPARE	34
35	SPARE	20 A	1					0.00	0.00	1	20 A	SPARE	36
37	SPARE	20 A	1	0.00	0.00					1	20 A	SPARE	38
39	SPARE	20 A	1			0.00	0.00			1	20 A	SPARE	40
41	SPARE	20 A	1					0.00	0.00	1	20 A	SPARE	42
TOTAL LOAD PER PHASE (KVA):				52.59 kVA		46.26 kVA		45.48 kVA					
TOTAL 3-PHASE LOAD (KVA):						144.34 kVA							
LOAD CLASSIFICATION		CONN. LOAD		DEMAND FACTOR		DEMAND LOAD		PANEL TOTALS					
HVAC		33954.03 VA		100.00%		33954.03 VA							
Lighting		3132.60 VA		100.00%		3132.60 VA		TOTAL CONNECTED LOAD (A): 401 A					
Motor		51557.90 VA		124.81%		64347.38 VA		DEMANDED LOAD (A): 436 A					
Other		44007.00 VA		100.00%		44007.00 VA		SPARE CAPACITY (25%): 109 A					
Power		2620.00 VA		100.00%		2620.00 VA		TOTAL EST. DEMAND LOAD (A): 545 A					
Receptacle		9070.00 VA		100.00%		9070.00 VA							
**NOTES:													

DESIGN & CONSTRUCTION

CONSULTANT:
CERTIFICATE OF AUTHORIZATION #: 018342



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REGISTRATION EXPIRES:
05/31/2025

CONTRACT: ELECTRICAL

TITLE:
REHABILITATE LOCKER ROOMS & LATRINES

LOCATION:
STATE ARMORY
150-74 6TH AVENUE
WHITESTONE, NY

CLIENT:
DIVISION OF MILITARY AND
NAVAL AFFAIRS

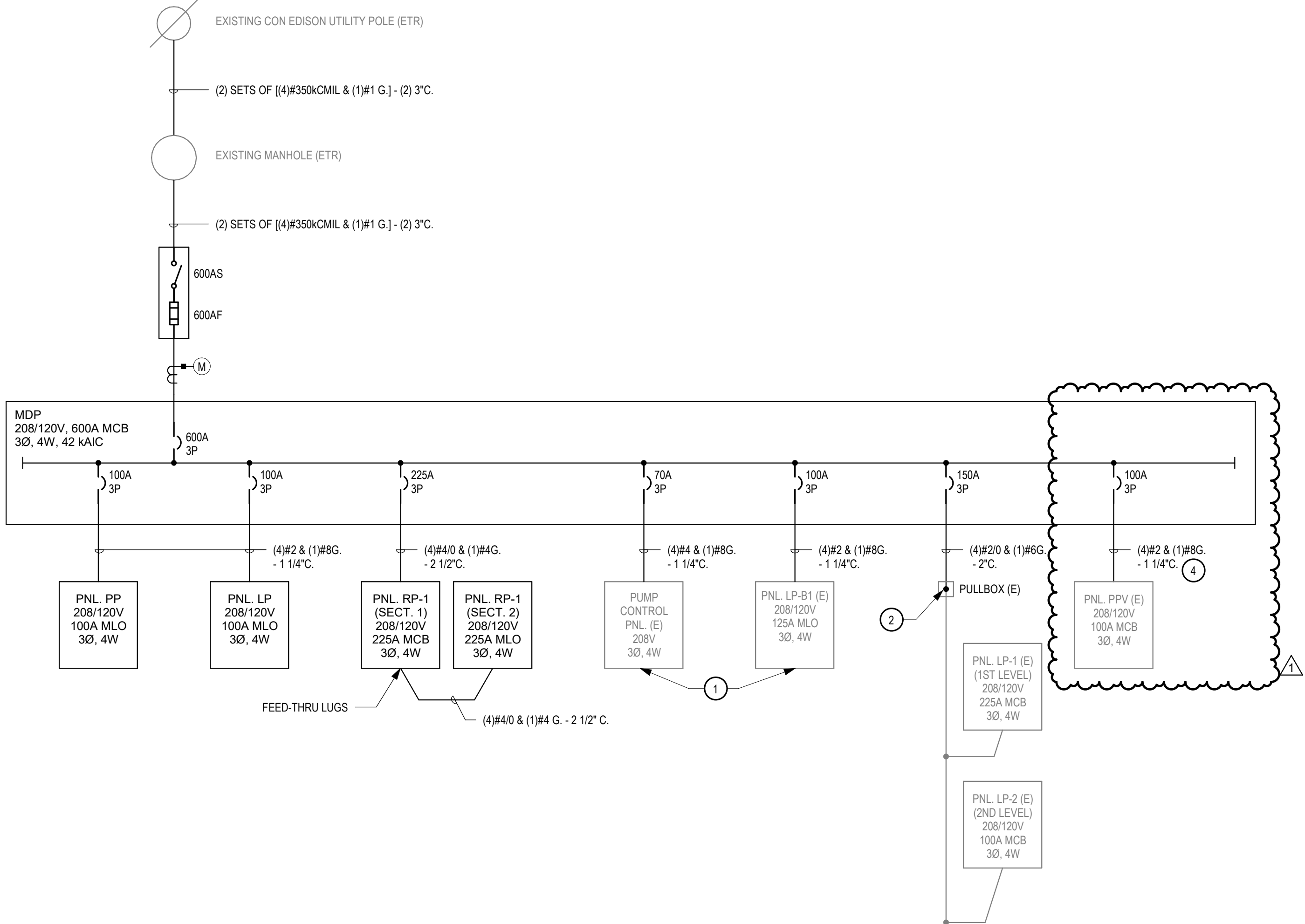
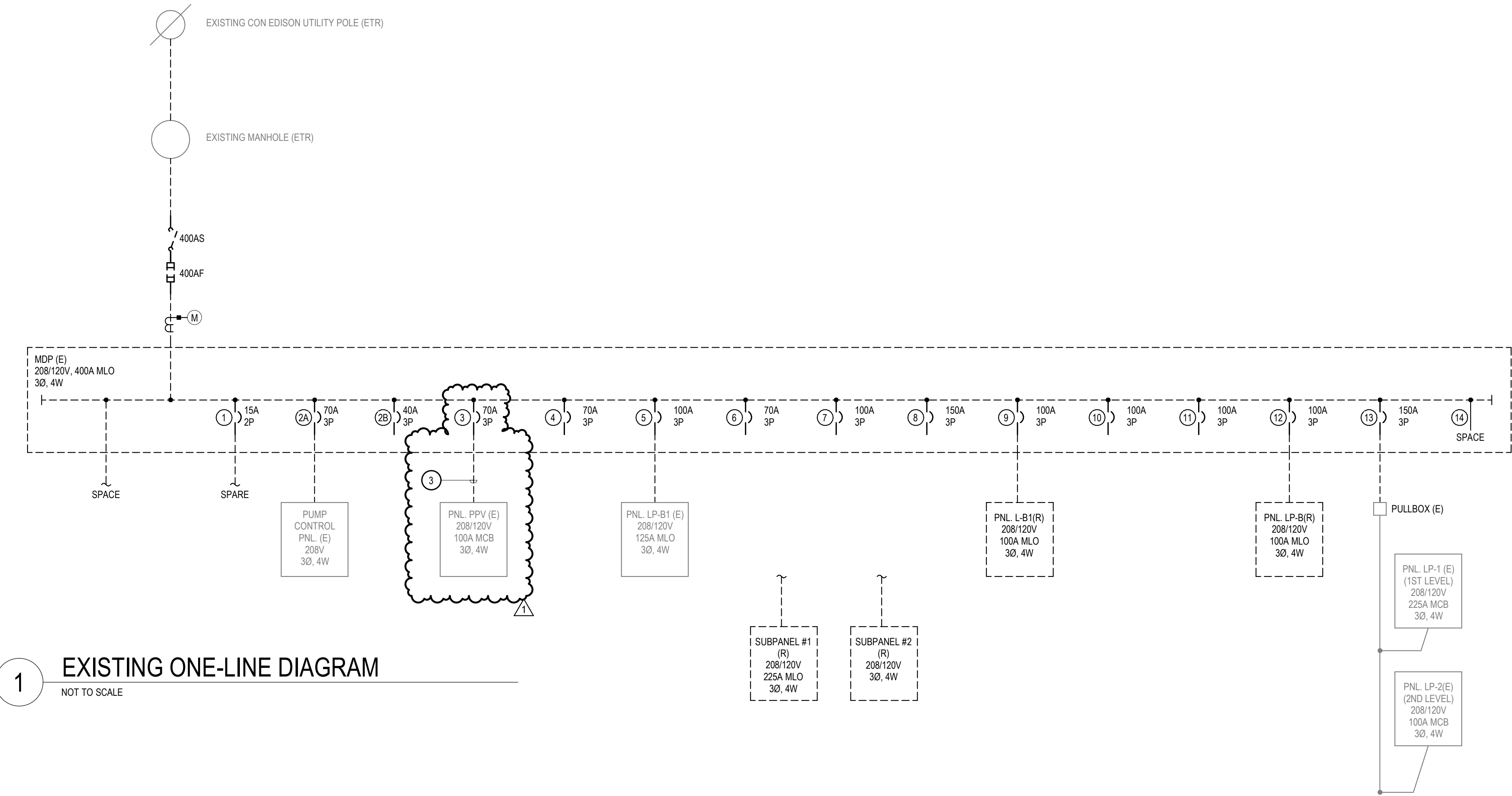
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0	05/12/23	ISSUED FOR BID
MARK	DATE	DESCRIPTION
PROJECT NUMBER: 47352 - E		
DESIGNED BY: AG		
DRAWN BY: RW		
FIELD CHECK: AG		
APPROVED:		
SHEET TITLE:		

EQUIPMENT & PANEL
SCHEDULES

DRAWING NUMBER:

E-501

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6/23/2023 10:49:41 AM
38x24 PLOT SHEET



CODED NOTES:

1. RE-FEED EXISTING PANELBOARD FROM DISTRIBUTION PANELBOARD MDP.
2. PROVIDE CODE COMPLIANT SPLICE IN EXISTING PULLBOX TO EXISTING FEEDER WIRING SERVING EXISTING PANELBOARDS LP-1 AND LP-2 ON 1ST AND 2ND LEVELS, RESPECTIVELY.
3. RETAIN EXISTING CONDUIT, AND DISCONNECT AND REMOVE EXISTING WIRING FOR EXISTING PANELBOARD PPV FROM PANELBOARD MDP.
4. EXTEND CONDUIT AS REQUIRED.

1

1 EXISTING ONE-LINE DIAGRAM

NOT TO SCALE

2 ONE-LINE DIAGRAM

NOT TO SCALE

LINE TYPE KEY:

EXISTING TO REMAIN: _____
PROPOSED: _____
REMOVAL: - - - - -

DESIGN & CONSTRUCTION

CONSULTANT:

CERTIFICATE OF AUTHORIZATION #: 018342



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05/31/2025

CONTRACT:

ELECTRICAL

TITLE:

REHABILITATE LOCKER ROOMS & LATRINES

LOCATION:

STATE ARMY
150-74 6TH AVENUE
WHITESTONE, NY

CLIENT:

DIVISION OF MILITARY AND
NAVAL AFFAIRS

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0	05/12/23	ISSUED FOR BID
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PROJECT NUMBER:	47352 - E	
DESIGNED BY:	AG	
DRAWN BY:	RW	
FIELD CHECK:	AG	
APPROVED:		
SHEET TITLE:		

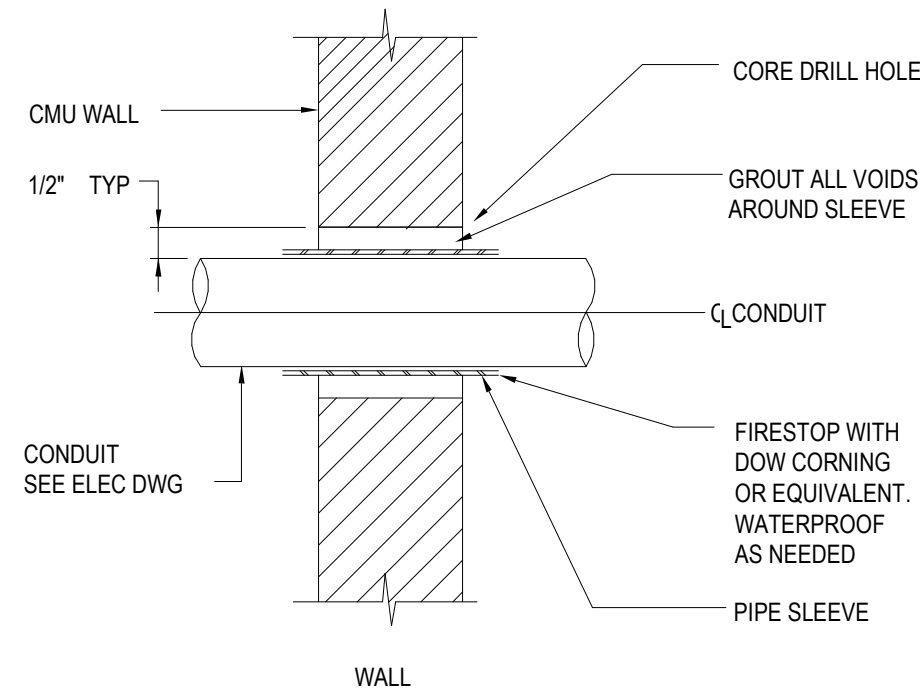
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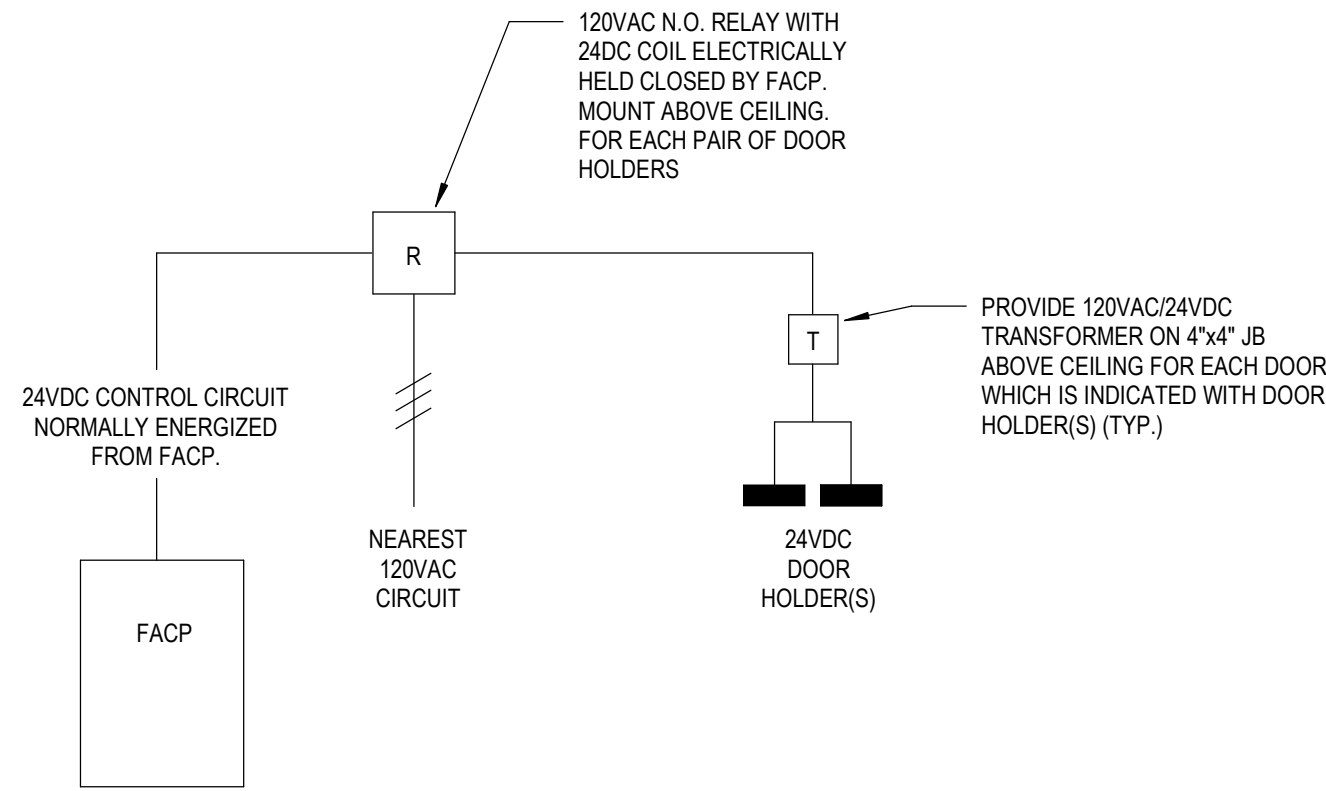
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SHEET: 39

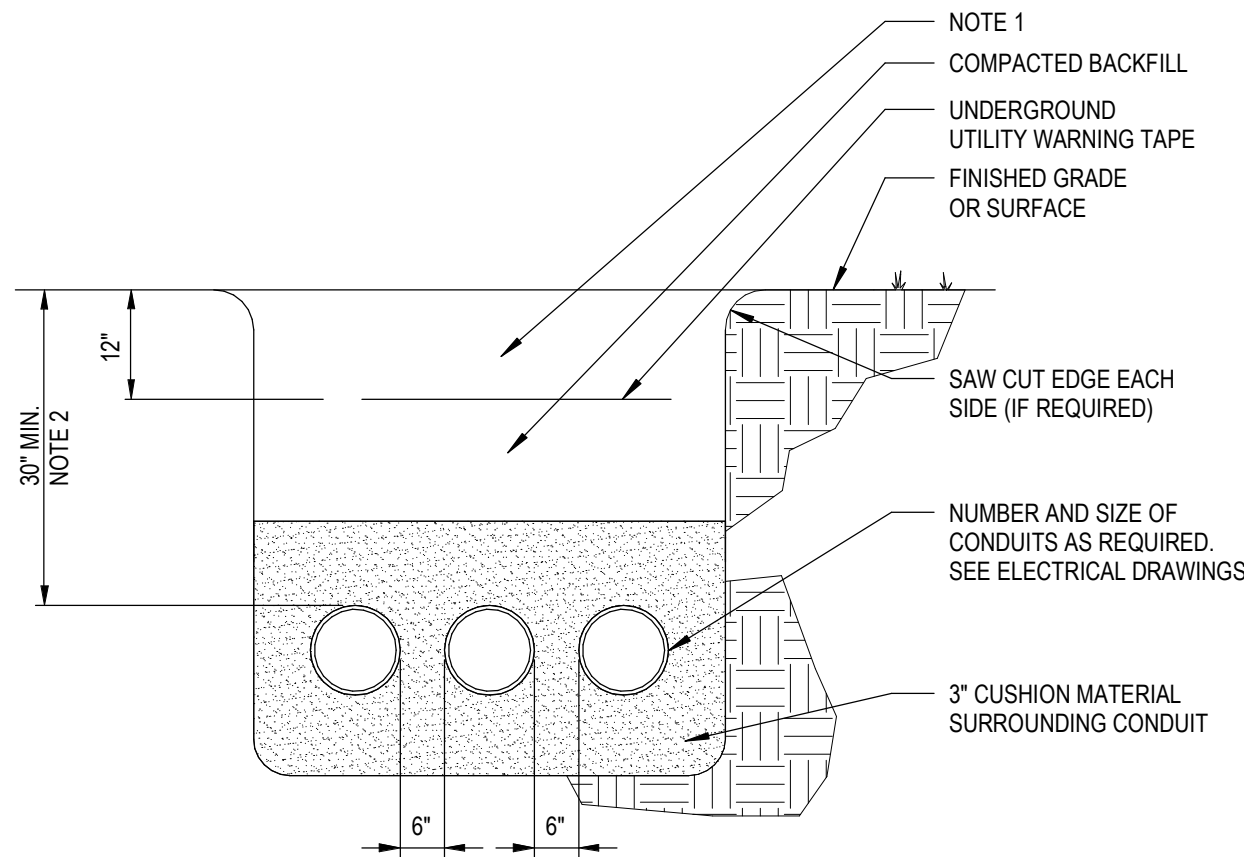
OF 44



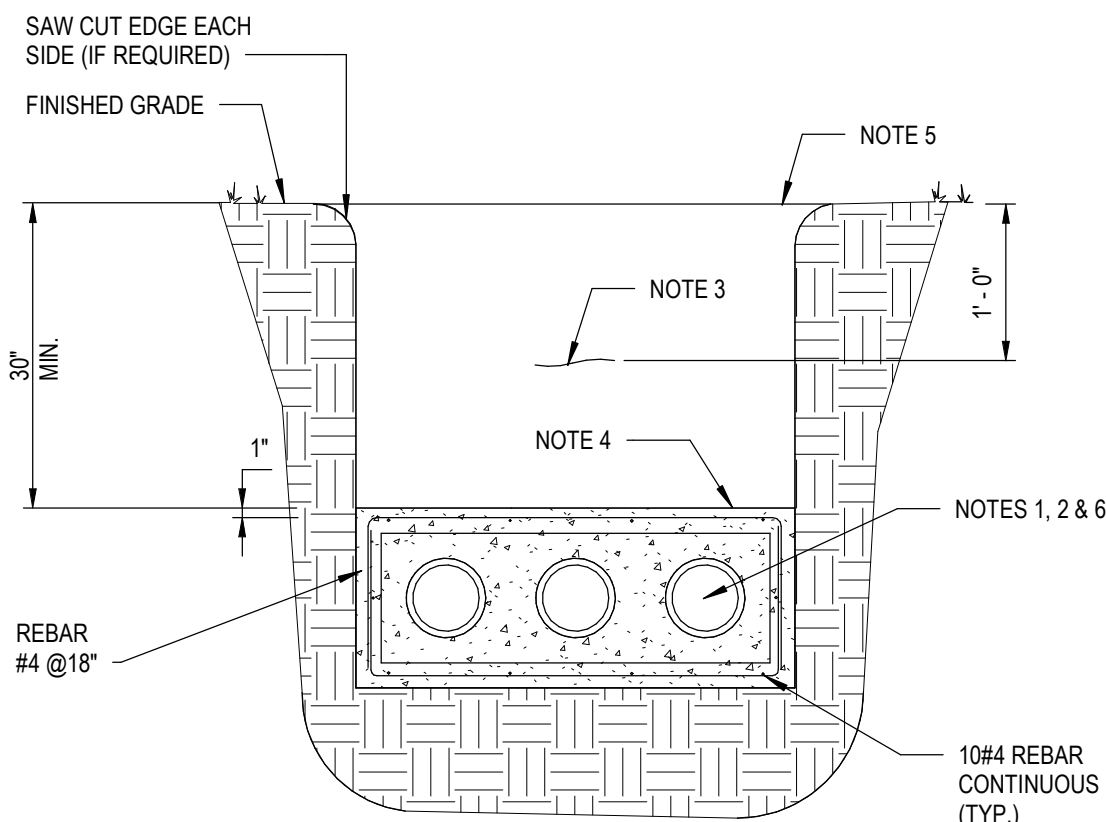
1 CONDUIT PENETRATION DETAIL
NOT TO SCALE



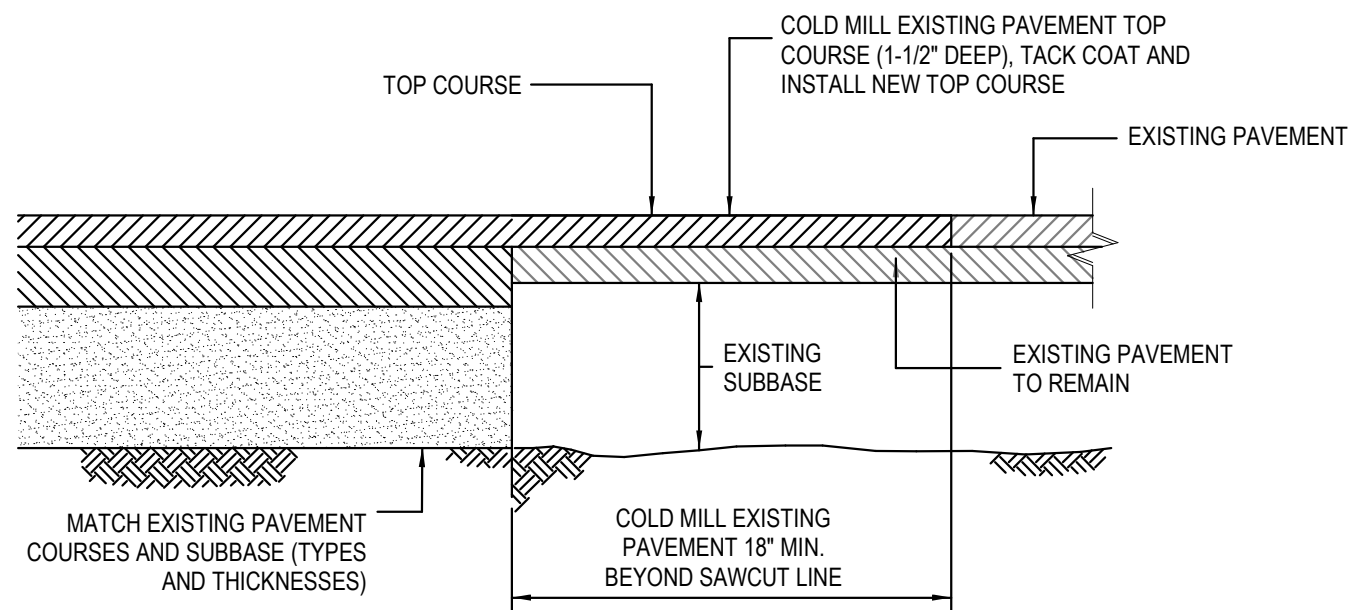
2 TYPICAL DOOR HOLDER DETAIL
NOT TO SCALE



3 TYPICAL DIRECT BURIED CONDUIT DETAIL
NOT TO SCALE



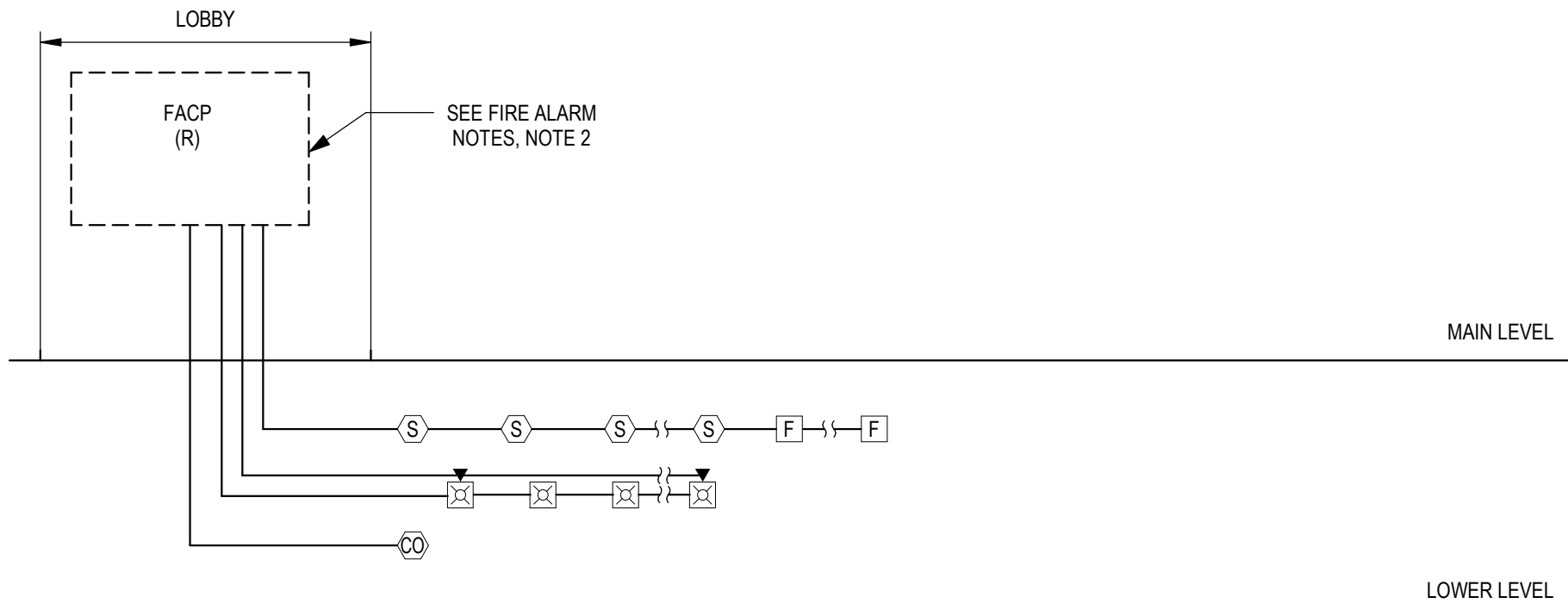
4 TYPICAL CONCRETE ENCASED DUCTBANK DETAIL
NOT TO SCALE



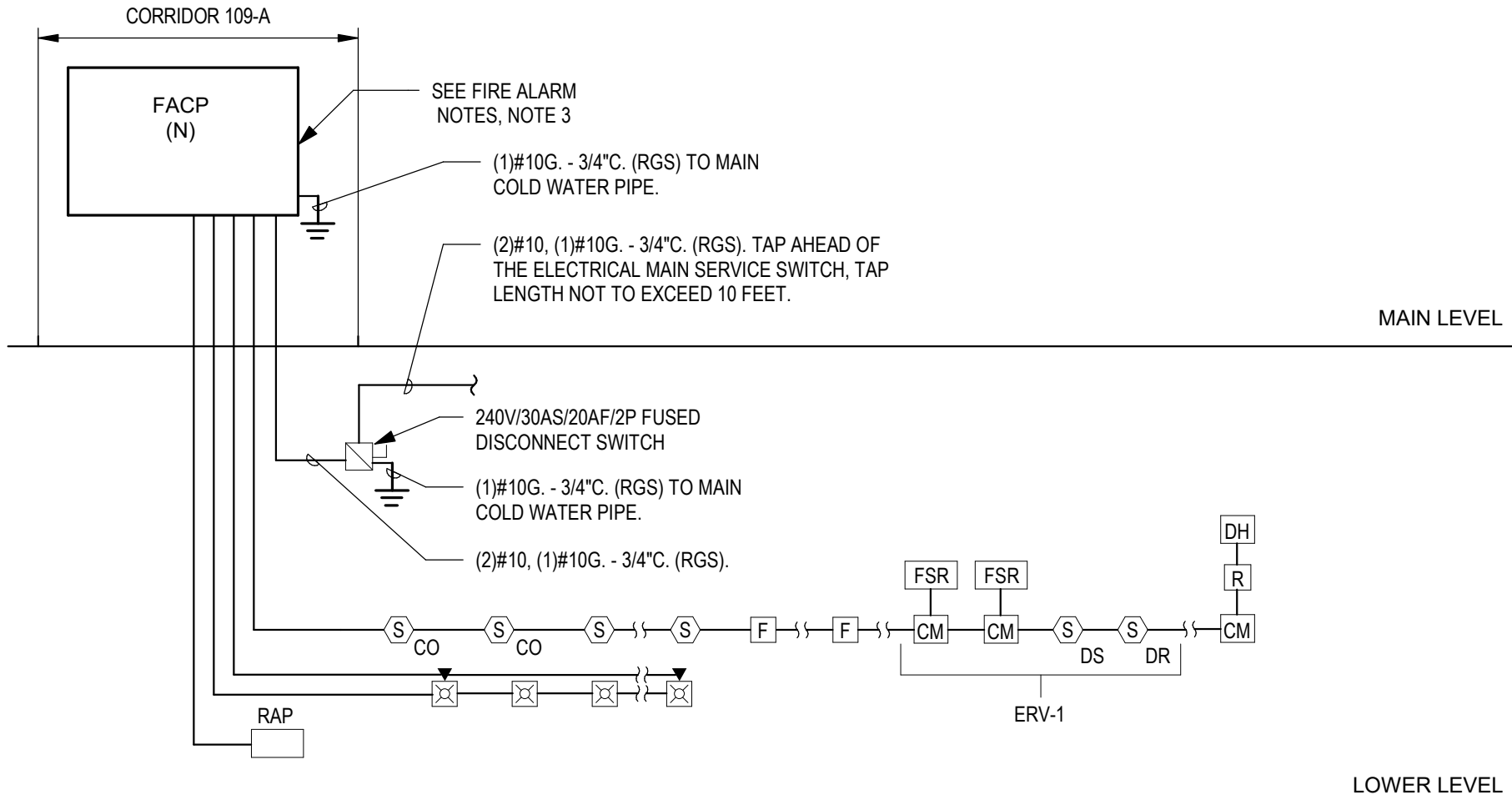
5 PAVEMENT TRANSITION DETAIL
NOT TO SCALE

1	06/21/23	ADDENDUM #1
0	05/12/23	ISSUED FOR BID
MARK	DATE	DESCRIPTION
PROJECT NUMBER:	47352 - E	
DESIGNED BY:	AG	
DRAWN BY:	RW	
FIELD CHECK:	AG	
APPROVED:		
SHEET TITLE:		

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6/23/2023 10:49:43 AM
38x24 PLOT SHEET



1 FIRE ALARM EXISTING RISER DIAGRAM
NOT TO SCALE



2 FIRE ALARM RISER DIAGRAM
NOT TO SCALE

FIRE ALARM NOTES:

- PERFORM ALL WORK IN ACCORDANCE WITH THE 2020 BUILDING CODE OF NEW YORK STATE, 2020 FIRE CODE OF NEW YORK STATE, 2017 NATIONAL ELECTRICAL CODE, 2016 NFPA 72 AND ALL PERTINENT NFPA CODES, O.S.H.A., THE RULES AND REGULATIONS OF ALL LOCAL, STATE, AND FEDERAL AUTHORITIES HAVING JURISDICTION, AND ALL STANDARDS APPLIED BY THE DIRECTOR'S REPRESENTATIVE. PROVIDE DIRECTOR'S REPRESENTATIVE WITH CERTIFICATES OF INSPECTION.
- ALL EQUIPMENT AND WIRING SHOWN ON THE FIRE ALARM RISER DIAGRAM IS AS NOTED, THE EXISTING FACP BEING CALLED FOR REMOVAL IS AN EDWARDS EST2 PANEL.
- THE FACP IS AN EDWARDS IO64 PANEL, ANY SUBSTITUTION MUST BE COMPATIBLE WITH EXISTING FIRE ALARM DEVICES.
- PROVIDE WIRING AS REQUIRED BETWEEN ALL DEVICES AND EQUIPMENT TO PERFORM FIRE ALARM SYSTEM FUNCTIONS.
- WIRING FOR FIRE ALARM DEVICES IN UNFINISHED SPACES WITHOUT HUNG CEILING SHALL BE INSTALLED IN EMT CONDUIT.
- WIRING FOR FIRE ALARM DEVICES IN FINISHED SPACES SHALL BE INSTALLED IN EMT CONDUIT UP TO 8'-0" AFF AND THEN IN FIRE ALARM PLENUM RATED CABLE ABOVE 8'-0" AFF.
- FOR LOCATIONS AND QUANTITIES OF DEVICES, REFER TO FIRE ALARM FLOOR PLANS, WHERE THERE ARE DISCREPANCIES BETWEEN THE PLAN AND THE RISER DIAGRAM, THE GREATER QUANTITY SHALL BE USED.
- DEVICES AND CONNECTIONS SHOWN ARE FOR INFORMATION ONLY. FIELD VERIFY THE FLOOR CONDITIONS PRIOR TO THE START OF ANY WORK.
- VERIFY ALL WIRING WITH THE FIRE ALARM VENDOR AND OBTAIN WIRING DIAGRAMS BEFORE PROCEEDING WITH THE START OF ANY WORK.
- DO NOT SPLICE FIRE ALARM CONDUCTORS.
- PROVIDE FAN SHUT DOWN CAPABILITY FOR FANS WITH A RATING LARGER THAN 2,000 CFM. SHUT DOWN SHALL BE ACCOMPLISHED BY ONE OR MORE OUTPUT CONTROL POINTS FROM THE FIRE ALARM SYSTEM TO RELAYS FOR SHUTDOWN. PROVIDE CONTROL AND MONITORING FOR ALL RELAYS. PROVIDE POWER, CONTROL RELAYS, MONITORING AND WIRING FOR ALL FIRE/SMOKE DAMPERS.
- DUCT DETECTORS SHALL BE FURNISHED AND INSTALLED AS INDICATED ON THE DRAWINGS ALONG WITH FURNISHING OF THE SAMPLING TUBES. DUCTWORK MODIFICATIONS AND INSTALLATION OF SAMPLING TUBES SHALL BE INDICATED ON THE MECHANICAL DRAWINGS.

FIRE ALARM ABBREVIATIONS:

- E EXISTING
NE NEW TO REPLACE EXISTING
R REMOVE
RE RELOCATED EXISTING

FIRE ALARM RISER NOTES:

- ALL COMPONENTS REQUIRED TO MAKE SYSTEM WORKABLE SHALL BE INCLUDED IN BID PRICE.
- EACH FIRE ALARM RELAY SHALL BE U.L. LISTED FOR FIRE ALARM SERVICE.
- ALL STROBES AND SPEAKER/SPEAKER/STROBES SHALL BE COLOR RED AND FLUSH WALL MOUNTED.
- ALL DUCT SMOKE DETECTORS INSTALLED IN HUNG CEILING AREA AND IN OUT OF SIGHT AREA SHALL HAVE REMOTELY INSTALLED STATUS INDICATOR LAMPS.
- ALL FIRE ALARM WIRING SHALL BE PLENUM RATED. WIRING INSTALLED IN NON ACCESSIBLE CEILING, EXPOSED BELOW 8' OR IN MECHANICAL ROOM AREA (NO CEILING), ROUTE IN EMT CONDUIT.
- ALL EXISTING END OF LINE ADDRESSABLE FIRE ALARM LOOPS CURRENTLY SERVING EXISTING ADDRESSABLE FIRE ALARM DEVICES SHALL BE RECONNECTED TO FACP LOCATED IN CORRIDOR 109-A.
- THIS RISER DIAGRAM IS A SCHEMATIC REPRESENTATION OF THE FIRE ALARM SYSTEM. REFER TO FLOOR PLANS FOR EXACT QUANTITY OF DEVICES.
- FIRE ALARM RISER DIAGRAM IS DIAGRAMMATIC AND FOR INTENT ONLY. PRIOR TO BID SUBMISSION COORDINATE WITH BUILDINGS FIRE ALARM MAINTENANCE VENDOR FOR THE FOLLOWING:
 - SCOPE OF WORK TO BE PERFORMED.
 - EXACT LOCATION OF ALL FIRE ALARM EQUIPMENT, TERMINAL BOXES, ETC.

FIRE ALARM SYMBOL LIST

- FACP
FIRE ALARM CONTROL PANEL
- RAP
REMOTE ANNUNCIATOR PANEL
- [B]
BELL DEVICE, WALL MOUNTED @ 80" AFF.
- [F]
MANUAL PULL STATION @ 48" AFF
- [S] ##
COMBINATION SPEAKER/STROBE DEVICE, WALL MOUNTED @ 80" AFF. NUMBER INDICATES CANDELA RATING.
- [S] ##
STROBE DEVICE, WALL MOUNTED @ 80" AFF. NUMBER INDICATES CANDELA RATING.
- [S]
SMOKE DETECTOR, CEILING MOUNTED
- [S] CO
COMBINATION SMOKE/CARBON MONOXIDE DETECTOR, CEILING MOUNTED
- [S] DS
SMOKE DETECTOR, DUCT MOUNTED, SUPPLY AIR SIDE.
- [S] DR
SMOKE DETECTOR, DUCT MOUNTED, RETURN AIR SIDE.
- [MM]
MONITOR MODULE
- [CM]
CONTROL MODULE
- [RI]
REMOTE INDICATOR
- [TS]
TAMPER SWITCH
- [WF]
WATER FLOW SWITCH
- [FSD]
FIRE SMOKE DAMPER
- [FSR]
FIRE SMOKE RELAY
- [R]
FIRE ALARM RELAY
- [DH]
MAGNETIC DOOR HOLDER

FIRE ALARM MATRIX																			
SYSTEM INPUTS		CONTROL UNIT ANNUNCIATOR				NOTIFICATION				CONTROL								SUPER STATION IDEN.	
INDEX	DESCRIPTION	ACTUATE ALARM AUDIBLE/SIGNAL FACP	ACTUATE TROUBLE AUDIBLE/SIGNAL AT FACP	ANNUNCIATE AT REMOTE ANNUNCIATOR PANEL	ACTUATE ALARM INDICATOR BY POINT	DISPLAY CHANGE OF STATUS AT FACP	ACTUATE TROUBLE INDICATOR BY POINT	ACTUATE GENERAL BUILDING ALARM	ACTUATE GENERAL BUILDING STROBE DEVICES	SHUT DOWN HVAC UNITS								TRANSMIT FIRE ALARM SIGNAL	TRANSMIT TROUBLE SIGNAL
1	ADDRESSABLE SMOKE DETECTOR	•	•	•	•	•	•	•	•	•								•	
2	ADDRESSABLE HEAT DETECTOR	•	•	•	•	•	•	•	•	•								•	
3	ADDRESSABLE CO DETECTOR	•	•	•	•	•	•	•	•	•								•	•
4	MANUAL PULL STATION	•	•	•	•	•	•	•	•	•								•	
5	DUCT SMOKE DETECTOR	•	•	•	•	•	•	•	•	•								•	
6	ADDRESSABLE SMOKE/CO DETECTOR	•	•	•	•	•	•	•	•	•								•	
7	FIRE ALARM AC POWER FAILURE	•	•																•
8	FIRE ALARM SYSTEM LOW BATTERY	•	•																•
9	OPEN CIRCUIT	•	•																•
10	GROUND FAULT	•	•																•
11	NOTIFICATION APPLIANCE CIRCUIT SHORT	•	•																

3 FIRE ALARM MATRIX
NOT TO SCALE

DESIGN & CONSTRUCTION

CONSULTANT:

CERTIFICATE OF AUTHORIZATION #: 018342



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REGISTRATION EXPIRES:
05/31/2025

CONTRACT:

ELECTRICAL

TITLE:

REHABILITATE LOCKER ROOMS & LATRINES

LOCATION:

STATE ARMY
150-74 6TH AVENUE
WHITESTONE, NY

CLIENT:

DIVISION OF MILITARY AND
NAVAL AFFAIRS

	06/21/23	ADDENDUM #1
0	05/12/23	ISSUED FOR BID
MARK	DATE	DESCRIPTION
PROJECT NUMBER:	47352 - E	
DESIGNED BY:	AG	
DRAWN BY:	RW	
FIELD CHECK:	AG	
APPROVED:		
SHEET TITLE:		

FIRE ALARM RISER
DIAGRAMS, NOTES,
SYMBOL LIST & MATRIX

DRAWING NUMBER:

FA-001

SHEET: 42

OF 44

BIM 360://47352 Whitestone Armory - Rehab Locker Rooms & Latrines/077848_ELEC_CENTRAL_R20.rvt
6/23/2023 10:49:44 AM
36x24 PLOT SHEET

1 FIRE ALARM LOWER LEVEL REMOVALS PLAN
1/8" = 1'-0" 0 4 8 16'



2 FIRE ALARM FIRST LEVEL REMOVALS PARTIAL PLAN
1/8" = 1'-0" 0 4 8 16'

- CODED NOTES:**
1. AREA DESIGNATED BY DASHED FENCED LINES ARE NOT IN CONTRACT, U.O.N.
 2. FIRE ALARM DEVICE IS TO BE REMOVED AND RETAINED FOR RE-INSTALLATION AS SHOWN ON DWG. FA-101.

DESIGN & CONSTRUCTION

CONSULTANT:
CERTIFICATE OF AUTHORIZATION #: 018342
CHIA

UNIFORM CODE STATEMENT:
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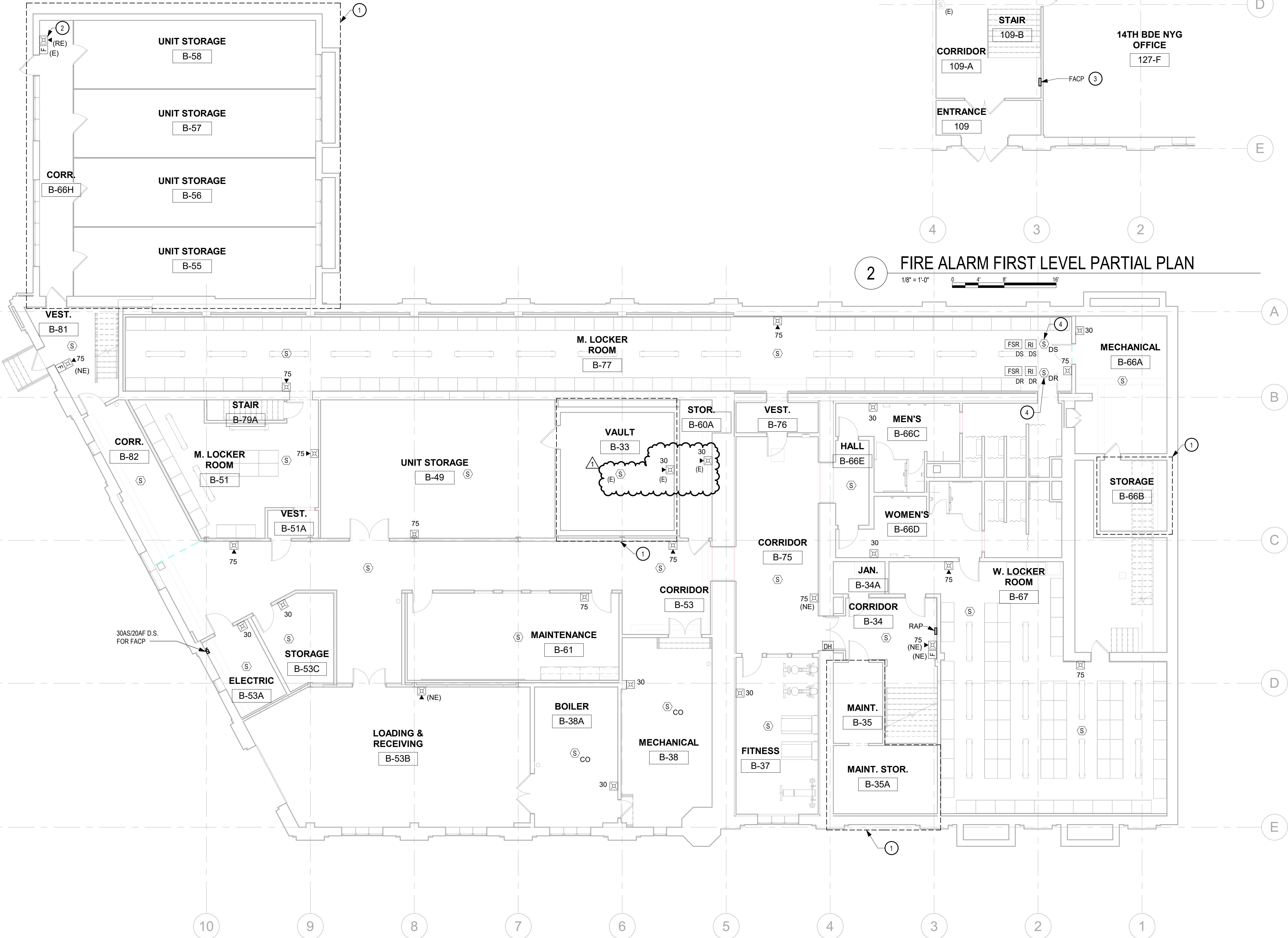
CONTRACT:	ELECTRICAL
TITLE:	REHABILITATE LOCKER ROOMS & LATRINES
LOCATION:	STATE ARMY 150-74 6TH AVENUE WHITESTONE, NY
CLIENT:	DIVISION OF MILITARY AND NAVAL AFFAIRS

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PROJECT NUMBER:	47352 - E	
DESIGNED BY:	AG	
DRAWN BY:	RW	
FIELD CHECK:	AG	
APPROVED:		
SHEET TITLE:	FIRE ALARM REMOVALS PLANS	
DRAWING NUMBER:	FAD-101	
SHEET: 43	OF 44	

BIM 360://47352 Whitestone Armory - Rehab Locker Rooms & Latrines/077848_ELEC_CENTRAL_R20.rvt
6/23/2023 10:49:44 AM
3/8x24 PLOT SHEET

DRAWING NOTES:

- COORDINATE FINAL MEANS AND METHODS, AND SCOPE OF WORK WITH THE ARCHITECTURAL, AND MECHANICAL DRAWINGS. BASE BID ACCORDINGLY.
- FURNISH AND INSTALL ALL ROUGH-IN EQUIPMENT AND APPURTENANCES PER THE 2011 NYC ELECTRICAL CODE AND NFPA 72 AS REQUIRED.
- COORDINATE ALL WORK WITH ALL INVOLVED TRADES, EQUIPMENT VENDORS AND THE DIRECTOR'S REPRESENTATIVE AS REQUIRED. BASE BID ACCORDINGLY.
- DETERMINE FINAL CONDUIT/CABLE ROUTING IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATE WITH OTHER TRADES AND THE DIRECTOR'S REPRESENTATIVE.
- WIRE ALL AND EXISTING FIRE ALARM DEVICES TO THE EXISTING FIRE ALARM SYSTEM. PROGRAM AND COMMISSION AS REQUIRED.
- ENSURE THAT ALL EXISTING FIRE ALARM DEVICES IN SCOPE OF WORK AREA REMAIN ACTIVE THROUGHOUT ALL PHASES OF CONSTRUCTION. UPON FINAL COMPLETION OF INSTALLATION AND TESTING OF DEVICES, REMOVE THE EXISTING OBSOLETE DEVICES INCLUDING ALL ASSOCIATED WIRING & CONDUIT.
- MAINTAIN THE EXISTING FIRE ALARM SEQUENCE OF OPERATION AS INDICATED IN THE MATRIX ON DWG. FA-001.
- INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS.
- REFER TO DWG. FA-001 FOR FIRE ALARM NOTES, SYMBOL LIST, AND FIRE ALARM RISER DIAGRAM.
- ALL FIRE ALARM DEVICES ARE DEVICES, U.O.N.
- ALL FIRE ALARM DEVICES DENOTED WITH 'N' ARE DEVICES THAT ARE TO REPLACE EXISTING DEVICES IN THE EXACT PREVIOUS OF THE DEVICE CALLED OUT TO BE DISCONNECTED AND REMOVED ON DWG. FAD-101. COORDINATE ALL WORK AS REQUIRED WITH APPROPRIATE PARTIES AND DMNA.



FIRE ALARM NOTES:

- REMOVE AND/OR RELOCATE ANY AND ALL EXISTING FIRE ALARM DEVICES AS REQUIRED. SURVEY ANY AND ALL EXISTING FIRE ALARM SYSTEM DEVICES PRIOR TO BID SUBMISSION. COORDINATE THE REMOVAL AND/OR RELOCATION OF EXISTING FIRE ALARM DEVICES WITH THE DIRECTOR'S REPRESENTATIVE AS REQUIRED.
- THE DESIGN DEPICTED ON THIS DRAWING IS CONCEPTUAL, AND IS PROVIDED TO ILLUSTRATE A GENERAL BASIS OF DESIGN INTENT FOR THE PURPOSE OF RECEIVING A FIRE ALARM SYSTEM PROPOSAL FROM THE BIDDER FOR THE EXPANSION OF THE EXISTING FIRE ALARM SYSTEM. ALL DEVICES SHALL BE COMPATIBLE WITH EXISTING FACILITIES.
- FURNISH, INSTALL, WIRE AND INTEGRATE ALL FIRE ALARM DEVICES (INITIATING DEVICES, VISUAL NOTIFICATION DEVICES, AUDIBLE NOTIFICATION DEVICES AND/OR AUDIBLE/VISUAL NOTIFICATION DEVICES) WITH THE EXISTING BUILDING FIRE ALARM SYSTEM PER VENDOR'S DIRECTION. VISIT THE SITE AND DEVELOP A FINAL, COORDINATED BILL OF MATERIAL AS REQUIRED TO COMPLETE ALL WORK ASSOCIATED WITH UTILIZING AND REWIRING THE EXISTING FIRE ALARM SYSTEM FOR THE SCOPE OF WORK AREA AS INTENDED.
- UTILIZE THE FACP INDICATED ON THE FIRST LEVEL PARTIAL PLAN AND THE EXISTING FIRE ALARM DEVICE CIRCUITS AS REQUIRED. BASE BID ACCORDINGLY.
- PLACE ALL EQUIPMENT IN A FULLY FUNCTIONAL STATE IN ACCORDANCE WITH CHAPTER 9 OF THE FIRE CODE, NFPA 72, SECTION 907 OF THE NYC BUILDING CODE AND THE 2011 NYC ELECTRICAL CODE.
- PRIOR TO THE COMMENCEMENT OF WORK, COORDINATE FINAL LOCATIONS OF ALL FIRE ALARM DEVICES WITH ALL ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
- WALL MOUNT ALL PROPOSED FIRE ALARM NOTIFICATION DEVICES. FLUSH MOUNT ALL DEVICE ROUGH-IN BOXES IN FINISHED SPACES UNLESS OTHERWISE REQUIRED BY THE FIRE ALARM VENDOR.
- EXPAND THE EXISTING FIRE ALARM SYSTEM AS REQUIRED. THIS SHALL INCLUDE, HOWEVER NOT NECESSARILY BE LIMITED TO, THE FOLLOWING:
 - SURVEY OF EXISTING DEVICES, CONFIRMATION OF COVERAGE AND ACCESSORY EQUIPMENT AS REQUIRED FOR A COMPLETE, OPERATIONAL AND COMPLIANT SYSTEM.
 - FURNISH AND INSTALL ALL SYSTEM WIRING DEVICES AND MOUNTING ASSEMBLIES SUCH AS INITIATING MODULES, POWER SUPPLIES, DEVICE CABLE, RACEWAY, AND ROUGH-IN BOXES AS REQUIRED TO PLACE THE SYSTEM IN PROPER WORKING ORDER WITH THE DEVICES SHOWN PER MANUFACTURER'S INSTRUCTIONS. AT MINIMUM, PROVIDE ONE POWER SUPPLY UNIT WITH BATTERY BACKUP FOR EVERY 30 DEVICES ADDED TO THE PROPOSED FACP. ALL CABLE/CABLE ASSEMBLY PROVISIONS SHALL BE LISTED FOR PLENUM USE.
 - PROVIDE ALL DEVICE AND POWER TERMINATION WORK, PROVIDE ALL POWER WIRING, FACILITIES, AND APPURTENANCES AS REQUIRED.
 - PROVIDE A FIRE ALARM SYSTEM SUBMITTAL FOR THE PURPOSE OF RECEIVING A CONSTRUCTION PERMIT. THIS SHALL INCLUDE, HOWEVER NOT NECESSARILY BE LIMITED TO THE FOLLOWING: A COMPLETE AND DETAILED BILL OF MATERIALS, A COORDINATED EQUIPMENT LOCATION PLAN, STORAGE BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, AND A COORDINATED DEVICE INTERCONNECTION DIAGRAM.

CODED NOTES:

- AREA DESIGNATED BY DASHED FENCED LINES ARE NOT IN CONTRACT. U.O.N.
- INSTALL FIRE ALARM DEVICE RETAINED DURING REMOVAL AS SHOWN ON DWG. FAD-101 IN POSITION INDICATED ON FLOOR PLAN.
- RE-ROUTE ALL EXISTING WIRING AND CONDUIT FOR FIRE ALARM DEVICES LOCATED ON THE 1ST AND 2ND LEVELS FROM EXISTING FACP TO THE LOCATION OF THE FACP SHOWN ON PARTIAL PLAN 2/FA-101. MAKE ALL CONNECTIONS AS REQUIRED TO ENSURE THE PROPER FUNCTIONALITY OF THESE DEVICES.
- SUPPLY AND RETURN DUCT SMOKE DETECTORS ARE TO BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACT. PROVIDE FIRE ALARM WIRING AND PROPER CONNECTIONS TO THE FACP. COORDINATE ALL WORK WITH THE MECHANICAL CONTRACT AND DIRECTOR'S REPRESENTATIVE.

DESIGN & CONSTRUCTION

CONSULTANT:

CERTIFICATE OF AUTHORIZATION #: 018342

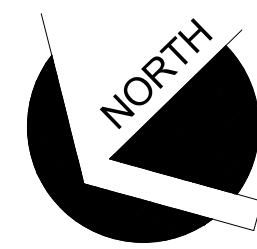


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APPROVED:			
SHEET TITLE:			

FIRE ALARM PLANS

DRAWING NUMBER:

FA-101

SHEET: 44

OF 44